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(54) GAS BURNER AND GAS STOVE

(57) Disclosed in present disclosure is a gas burner. The gas burner comprises a burner body (100), wherein the burner body (100) is internally provided with a gas mixing cavity (110), a first ejection cavity (120), a flow guide cavity (130) and a gas supply cavity (140); the burner body (100) is provided with a gas inlet (111) and a first air inlet (112), which are in communication with the gas mixing cavity (110); the gas mixing cavity (110) and the flow guide cavity (130) are respectively provided at two sides of the gas supply cavity (140), and the flow guide cavity (130) is in communication with the gas supply cavity (140); two ends of the first ejection cavity (120) are respectively in communication with the gas mixing cavity (110) and the gas supply cavity (140); the first ejection cavity (120) is in curved transition connection with the flow guide cavity (130); and the flow guide cavity (130) is also in curved transition connection with the gas supply cavity (140). By means of the arrangement of the curved transition, mixed gases can be guided into the flow guide cavity (130) and the gas supply cavity (140), such that a gas path inside the gas burner is unobstructed.

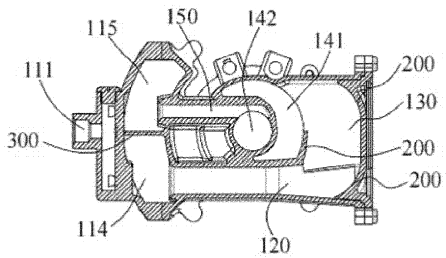


FIG. 3

Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims priority to Chinese Patent Application No. 202110887955.3, titled "GAS BURNER AND GAS STOVE", filed on August 03, 2021, and Chinese Patent Application No. 202110888122.9, titled "GAS BURNER AND GAS STOVE", filed on August 03, 2021, both of which are incorporated herein by reference in their entireties.

FIELD

[0002] The present disclosure relates to the field of burning device technologies, and more particularly, to a gas burner and a gas stove.

BACKGROUND

[0003] A burning device refers to a kitchen appliance that is heated by a direct fire with gaseous fuel such as liquefied petroleum gas (liquid), artificial coal gas, and natural gas. The gaseous fuel is introduced into a gas stove and mixed with air, and then a direct fire is generated by igniting a mixed gas.

[0004] In the related art, a gas pipeline can be extended for a more thorough mixing of the gaseous fuel and the air. However, the mixed gas may be blocked at a bent position of the gas pipeline in this way, resulting in obstruction of a gas path of the gas pipeline.

SUMMARY

[0005] The present disclosure aims to at least to some extent solve a technical problem of obstruction of a gas pipeline due to bending in an existing gas stove. To this end, the present disclosure provides a gas burner and a gas stove.

[0006] The present disclosure provides a gas burner. The gas burner includes a burner body. The burner body has a gas mixing cavity, a first ejection cavity, a flow guide cavity, a gas supply cavity, a gas inlet and a first air inlet. The gas inlet and the first air inlet are in communication with the gas mixing cavity. The gas mixing cavity and the flow guide cavity are formed at two sides of the gas supply cavity respectively. The flow guide cavity is in communication with the gas supply cavity. Two ends of the first ejection cavity are in communication with the gas mixing cavity and the gas supply cavity respectively. The first ejection cavity is in communication with the flow guide cavity through a curved transition; and the flow guide cavity is also in communication with the air supply cavity through a curved transition.

[0007] In the gas burner according to the present disclosure, the gas mixing cavity and the flow guide cavity are formed at the two sides of the gas supply cavity respectively, so that there is a distance between the gas mixing cavity and the flow guide cavity. The first ejection cavity is connected between the gas mixing cavity and the gas supply cavity, so that a mixed gas in the gas mixing cavity can enter the gas supply cavity through the first ejection cavity and the flow guide cavity. In this way, a path length of gas reaching the gas supply cavity is increased. As a result, the mixed gas is fully mixed during movement.

[0008] Based on the curved transition connection between the first ejection cavity and the gas mixing cavity as well as the curved transition connection between the gas mixing cavity and the gas supply cavity, after the gas reaches a connection between the first ejection cavity and the gas mixing cavity as well as a connection between the gas mixing cavity and the gas supply cavity, the mixed gas may be guided through the transition connection to enter the first ejection cavity and the gas mixing cavity to prevent the mixed gas from being stuck and accumulated at the above-mentioned connections. Therefore, a gas path between the gas mixing cavity and the gas supply cavity is unobstructed.

[0009] In an embodiment of the present disclosure, the first ejection cavity has a first end in communication with the flow guide cavity and a second end in communication with the gas mixing cavity; and an end of the flow guide cavity in communication with the gas supply cavity bends towards the second end. In this way, the gas supply cavity in communication with the flow guide cavity is relatively close to the gas mixing cavity. Therefore, a length of an overall structure formed by connecting the first ejection cavity, the flow guide cavity, and the gas supply cavity is relatively short. Thus, a length of the burner body does not need to be excessively long. As a result, the gas burner can be easily mounted and placed eventually.

[0010] In an embodiment of the present disclosure, the gas supply cavity adheres to an outer wall of the first ejection cavity. In this way, there is no gap between the gas supply cavity and the first ejection cavity. Therefore, an internal structure of the burner body is more compact.

[0011] In an embodiment of the present disclosure, the burner body further has a second ejection cavity; and the gas supply cavity includes a first cavity portion and a second cavity portion surrounded by the first cavity portion, the first cavity portion is in communication with the flow guide cavity, and the second ejection cavity has an end in communication with the gas mixing cavity and another end in communication with the second cavity portion. In this way, the gas may be supplied to the second cavity portion independently through the second ejection cavity. Therefore, interference between the mixed gas in the first ejection cavity and the mixed gas in the second ejection is prevented.

[0012] In an embodiment of the present disclosure, a longitudinal direction of the second ejection cavity misaligns with a center of the second cavity portion. In this way, a length of the second ejection cavity can be increased. Therefore, the mixed gas is mixed more sufficiently in the first ejection cavity.

[0013] In an embodiment of the present disclosure, the longitudinal direction of the second ejection cavity is tangential to an edge of the second cavity portion; and the second ejection cavity is in communication with the second cavity portion through a curved transition. The second ejection cavity is tangential to the edge of the second cavity portion, which thus maximizes the length of the second ejection cavity.

[0014] In an embodiment of the present disclosure, the second ejection cavity has a third end connected to the second cavity portion and a fourth end connected to the gas mixing cavity, the third end bends towards the fourth end. In this way, the second cavity portion connected to the third end may be relatively close to the gas mixing cavity. Therefore, a length of an overall structure of a connection between the second ejection cavity and the second cavity portion is shorter, which further reduces the length of the burner body. As a result, the gas burner can be easily mounted and placed eventually.

[0015] In an embodiment of the present disclosure, the gas mixing cavity is provided with a partition plate configured to divide the gas mixing cavity into a first gas mixing portion in communication with the first ejection cavity and a second gas mixing portion in communication with the second ejection cavity. In this way, the first gas mixing portion and the second gas mixing portion are independent of each other, which can prevent interference between the gas introduced into the first injection cavity and the gas introduced into the second injection cavity.

[0016] In an embodiment of the present disclosure, the partition plate is detachably disposed in the gas mixing cavity. Since the partition plate is detachably disposed in the gas mixing cavity, when a component in the gas mixing cavity needs to be mounted and dismounted, for example, a nozzle, the gas mixing cavity can have a larger space by dismounting the partition plate to facilitate mounting and dismounting of the component.

[0017] In an embodiment of the present disclosure, an inner wall of the gas mixing cavity is provided with a mounting groove mating with the partition plate, the mounting groove has a fifth end and a sixth end opposite to the fifth end, and the fifth end is provided with a notch. The part of the mounting groove adjacent to the fifth end has a width greater than a width of part of the mounting groove adjacent to the sixth end. The mounting groove can allow the partition plate to be easily fixed in the gas mixing cavity, and the mounting groove has a structure with a wide top and a narrow bottom can allow for a stable and reliable fixation effect of the partition plate.

[0018] In an embodiment of the present disclosure, the burner body further has a second air inlet in communication with the gas mixing cavity, and the second air inlet is provided with a seal plate which is detachably connected to the second air inlet and is configured to open or close of the second air inlet. The opening or closing of second air inlet enable the gas burner to be in an upward air inlet mode, or an upward and downward air inlet mode.

[0019] The present disclosure further provides a gas stove. The gas stove includes the above-mentioned the gas burner.

[0020] In an embodiment of the present disclosure, the gas stove further includes a gas distribution disc disposed on the burner body and opposite to the gas supply cavity, the burner body is provided with a first connector, the gas distribution disc is provided with a second connector, and the first connector cooperating with the second connector to limit a movement of the gas distribution disc in a radial direction of the gas distribution disc. The first connector cooperates with the second connector to keep the gas distribution disc stable.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021]

FIG. 1 is a schematic diagram of a partition plate of a gas burner according to an embodiment of the present disclosure.

FIG. 2 is a schematic diagram of a mounting groove of a gas burner according to an embodiment of the present disclosure.

FIG. 3 is a schematic diagram of an internal structure of a gas burner according to an embodiment of the present disclosure.

FIG. 4 is a schematic diagram of an internal structure of a gas burner according to an embodiment of the present disclosure from another perspective.

FIG. 5 is a bottom view of a gas burner according to an embodiment of the present disclosure.

FIG. 6 is a schematic diagram of a seal plate of a gas burner according to an embodiment of the present disclosure.

FIG. 7 is a schematic diagram of an overall structure of a gas stove according to an embodiment of the present disclosure.

FIG. 8 is a schematic diagram of an internal structure of a gas stove according to an embodiment of the present disclosure.

FIG. 9 is a front view of a gas stove according to an embodiment of the present disclosure.

Reference numerals:

[0022]

100-burner body, 110-gas mixing cavity, 111-gas inlet, 112-first air inlet, 113-second air inlet, 114-first air mixing portion, 115-second gas mixing portion, 116-mounting groove, 120-first ejection cavity, 121-first portion, 122-second portion, 130-flow guide cavity, 140-air supply cavity, 141-first cavity portion, 142-second cavity portion, 150-second ejection cavity, 160-first connector;

200-bend transition section;

300-partition plate;

400-seal plate;

500-air distribution disc, 510-second connector.

DETAILED DESCRIPTION

[0023] Referring to FIG. 1 to FIG. 6, the present disclosure provides a gas burner, which can be applied to a gas stove. The gas stove is an apparatus that uses a gaseous fuel as a raw material. In the apparatus, the gaseous fuel is mixed with air to form mixed gas, and the mixed gas is ignited by an ignition device to generate a flame. Moreover, the mixed gas is continuously supplied to maintain a long-lasting burning flame.

[0024] The gas burner according to the present disclosure includes a burner body 100. The burner body 100 is a basic component of the gas burner and may provide a mounting basis for at least some other components of the gas burner. Since a high-temperature flame can be generated during operation of the gas stove, the burner body 100 may be made of a high-temperature-resistant metal material, and specifically, copper alloy may be used for preparation. In this way, the burner body 100 has no deformation during the operation of the gas stove.

[0025] The burner body 100 has a gas mixing cavity 110, a flow guide cavity 130, a gas supply cavity 140, and a first ejection cavity 120, which are all disposed in the burner body 100. In some embodiments, the burner body 100 may be designed in an integrated structure, and the gas mixing cavity 110, the flow guide cavity 130, the gas supply cavity 140, and the first ejection cavity 120 may be formed inside the burner body 100 through casting. In this way, the burner body 100 has a better structural strength. Therefore, the burner body 100 has better reliability and durability. Meanwhile, a difficulty of preparing the burner body 100 can be reduced, which facilitates mass production.

[0026] The burner body 10 has a gas inlet 111 and a first air inlet 112. The gas inlet 111 may be in communication with a gas pipeline, so that gaseous fuel may enter the burner body 100 through the gas inlet 111. The first air inlet 112 is an opening located at a surface of the burner body 100, so that external air may enter the burner body 100 through the first air inlet 112. Since each of the gas inlet 111 and the first air inlet 112 is in communication with the gas mixing cavity 110, both the gaseous fuel and the air may enter the gas mixing cavity 110, and the gas fuel and the air begin to be mixed with each other.

[0027] After the gaseous fuel and the air are mixed with each other, the mixed gas may enter the gas supply cavity 140. The ignition device may be disposed in the gas supply cavity 140 or a position outside but close to the air supply cavity 140. The ignition device can ignite the mixed gas in the gas supply cavity 140 to generate the flame. The flow guide cavity 130 and the gas mixing cavity 110 are formed at two sides of the gas supply cavity 140, and the flow guide cavity 130 is in communication with the gas mixing cavity 110 through the first injection cavity 120. The flow guide cavity 130 and the gas mixing cavity 110 are separated by the gas supply cavity 140, and therefore there is a distance between the flow guide cavity 130 and the gas mixing cavity 110. Thus, the mixed gas in the gas mixing cavity 110 needs to pass through the first ejection cavity 120 and the flow guide cavity 130 in a process of reaching the gas supply cavity 140. In this way, a path length of the mixed gas reaching the gas supply cavity 140 can be increased. As a result, the mixed gas can be fully mixed in the process of passing through the first ejection cavity 120 and the flow guide cavity 130.

[0028] After the gaseous fuel and the air are fully mixed with each other to enter the gas supply cavity 140, the fully mixed gas is ignited by the ignition device. Therefore, a stronger flame is generated. Meanwhile, since the mixed gas in the gas mixing cavity 110 needs to enter the gas supply cavity 140 through the first injection cavity 120 and the flow guide cavity 130, the mixed gas in the gas supply cavity 140 may be fully mixed. As a result, intensity of the flame generated after the mixed gas in the gas supply cavity 140 is ignited remains stable.

[0029] The flow guide cavity 130 as mentioned above may bend relative to the first ejection cavity 120. In this way, after the mixed gas reaches an end portion of the first ejection cavity 120, a flow rate of the mixed gas is slowed down, for an inner wall of the end portion of the first ejection cavity 120 serves to block the mixed gas. Meanwhile, the mixed gas needs to make a turn to enter the flow guide cavity 130. In this way, a time period required for the mixed gas to pass through the first ejection cavity 120 is longer. Therefore, the mixed gas can be mixed more fully.

[0030] The above-mentioned air supply cavity 140 may bend relative to the flow guide cavity 130. In this way, the flow rate of the mixed gas is slowed down, for the mixed gas is blocked by an inner wall of the flow guide cavity 130 after entering the flow guide cavity 130 and moving to a connection between the flow guide cavity 130 and the gas supply cavity 140. Meanwhile, the mixed gas needs to make a turn and then enters the gas supply cavity 140. In this way, a time period for the mixed gas to pass through the flow guide cavity 130 is longer. Therefore, the mixed gas is further mixed fully.

[0031] The mixed gas needs to make turns for several times in the process of passing through the first ejection cavity 120 and the flow guide cavity 130, and therefore the mixed gas can be fully mixed. Certainly, a plurality of first ejection cavities 120 and a plurality of flow guide cavities 130 may be provided, and two adjacent connected cavities are both bent to each other. In this way, the path length of the mixed gas can be further increased. Thus, the gaseous fuel is mixed with the air more sufficiently. Meanwhile, the first injection cavity 120, the flow guide cavity 130, and the air supply cavity 140 which are bent to each other can increase a length of a gas path between the gas mixing cavity 110 and the gas supply cavity 140. In this case, the distance between the gas mixing cavity 110 and the gas supply cavity 140 remains unchanged. Correspondingly, the burner body 100 has no need to be excessively large, and therefore the burner body 100 occupies a small space.

[0032] The above-mentioned first ejection cavity 120 and the flow guide cavity 130 are bent to each other, and the flow guide cavity 130 and the gas supply cavity 140 are bent to each other. Therefore, when the mixed gas reaches a connection between the first ejection cavity 120 and the flow guide cavity 130 and the connection between the flow guide cavity 130 and the gas supply cavity 140, airflow formed by the mixed gas may be blocked by the inner wall of the first ejection cavity 120 and the inner wall of the flow guide cavity 130. In this way, a residence time period of the mixed gas in the first ejection cavity 120 and the flow guide cavity 130 can be prolonged. However, the mixed gas may be stuck and accumulated at the above-mentioned connections, which then causes further obstruction of the gas path between the gas mixing cavity 110 and the gas supply cavity 140.

[0033] Therefore, the first ejection cavity 120 may be in communication with the flow guide cavity 130 through a curved transition, which may serve to guide the mixed gas. In some embodiments, the flow guide cavity 130 bends relative to the first ejection cavity 120. After the mixed gas reaches the connection between the flow guide cavity 130 and the first ejection cavity 120, the mixed gas may be guided through the curved transition to pass through the above-mentioned connection to allow the mixed gas to smoothly enter the flow guide cavity 130. In this way, the mixed gas is prevented from being stuck and accumulated in the first injection cavity 120 after being blocked by the inner wall of the first ejection cavity 120. As a result, a gas path between the first ejection cavity 120 and the flow guide cavity 130 is unobstructed.

[0034] In some embodiments, an inner wall of the first injection cavity 120 adjacent to the flow guide cavity 130 bends towards the flow guide cavity 130. When the mixed gas reaches a portion of the first ejection cavity 120 adjacent to the flow guide cavity 130, the mixed gas may move along the curved inner wall of the first ejection cavity 120 under the influence of the Coanda effect. The bent inner wall can serve to guide the mixed gas. In this way, the airflow formed by the mixed gas can be prevented from directly impacting the inner wall of the first injection cavity 120 and being blocked. Therefore, the mixed gas can smoothly pass through the connection between the first ejection cavity 120 and the flow guide cavity 130.

[0035] Meanwhile, the flow guide cavity 130 may also be in communication with the gas supply cavity 140 through a curved transition. In some embodiments, the gas supply cavity 140 bends relative to the flow guide cavity 130. After the mixed gas reaches the connection between the flow guide cavity 130 and the gas supply cavity 140, the mixed gas may be guided through the curved transition to pass through the above-mentioned connection to allow the mixed gas to smoothly enter the gas supply cavity 140. In this way, the mixed gas is prevented from being stuck and accumulated in the flow guide cavity 130 after being blocked by the inner wall of the flow guide cavity 130. As a result, a gas path between the flow guide cavity 130 and the gas supply cavity 140 is unobstructed.

[0036] In some embodiments, an inner wall of the flow guide cavity 130 adjacent to a second opening bends towards the gas supply cavity 140. When the mixed gas reaches a portion of the flow guide cavity 130 adjacent to the gas supply cavity 140, the mixed gas may move along the curved inner wall of the flow guide cavity 130 under the influence of the Coanda effect. In this way, the airflow formed by the mixed gas can be prevented from directly impacting the inner wall of the flow guide cavity 130 and being blocked. Therefore, the mixed gas can smoothly pass through the connection between the flow guide cavity 130 and the gas supply cavity 140.

[0037] Through the curved transition at the connection between the first ejection cavity 120 and the flow guide cavity 130 as well as the curved transition at the connection between the flow guide cavity 130 and the gas supply cavity 140, the gas path between the gas mixing cavity 110 and the gas supply cavity 140 is unobstructed. Therefore, the mixed gas can enter the air supply cavity 140 uninterruptedly and steadily. Thus, the flame ultimately generated by igniting the mixed gas in the gas supply cavity 140 by the ignition device is stabilized.

[0038] In the gas burner according to the present disclosure, the gas mixing cavity 110 and the flow guide cavity 130 are disposed at the two sides of the gas supply cavity 140, and therefore there is the distance between the gas mixing cavity 110 and the flow guide cavity 130. The first ejection cavity 120 is connected between the gas mixing cavity 110 and the gas supply cavity 140, and therefore the mixed gas in the gas mixing cavity 110 needs to enter the gas supply cavity 140 through the first ejection cavity 120 and the flow guide cavity 130. In this way, the path length of the mixed gas reaching the gas supply cavity 140 can be increased. As a result, the mixed gas can be fully mixed during the movement.

[0039] The first injection cavity 120 and the gas mixing cavity 110 are in communication with each other through a curved transition, and therefore the gas mixing cavity 110 bends relative to the first ejection cavity 120. In this way, a length of an overall structure formed by connecting the first ejection cavity 120 to the gas mixing cavity 110 can be reduced to shorten the curved transition connection between the first injection cavity 120 and the gas mixing cavity 110 as well as the curved transition connection between the gas mixing cavity 110 and the gas supply cavity 140. As a result, after the mixed gas reaches the connection between the first ejection cavity 120 and the gas mixing cavity 110 as well as the connection between the gas mixing cavity 110 and the gas supply cavity 140, the mixed gas may be guided through the transition connection to enter the first ejection cavity 120 and the gas mixing cavity 110 to prevent the mixed gas from being stuck and accumulated at the above-mentioned connections. Thus, the gas path between the mixed gas cavity 110 and the gas supply cavity 140 is unobstructed.

[0040] In some embodiments, the first injection cavity 120 and the flow guide cavity 130 may also be in communication with each other through a curved transition. In some embodiments, the inner wall of the first ejection cavity 120 close to the flow guide cavity 130 may be a bevel slanting towards the flow guide cavity 130. In this way, the mixed gas can move into the flow guide cavity 130 along the bevel, for the bevel can also serve to guide the mixed gas. Correspondingly, the flow guide cavity 130 may also be in communication with the gas supply cavity 140 through the curved transition. In this way, the mixed gas located at the connection between the flow guide cavity 130 and the gas supply cavity 140 can also be guided to enter the gas supply cavity 140.

[0041] The above-mentioned bevel may also be a multi-section bevel, a multi-section curved surface, or a mixed surface of the multi-section bevel and the multi-section curved surface, all of which can guide the mixed gas to allow for accessibility of the gas path between the gas mixing cavity 110 and the gas supply cavity 140.

[0042] In some embodiments, the first ejection cavity 120 has a first end in communication with the flow guide cavity 130 and a second end in communication with the air mixing cavity 110. An end of the flow guide cavity 130 in communication with the gas supply cavity 140 bends towards a fourth end of the first ejection cavity 120. In this way, the gas supply cavity 140 is relatively close to the gas mixing cavity 110. Therefore, a length of an integrated structure formed by connecting the first ejection cavity 120 to the gas supply cavity 140 is relatively smaller. Thus, a length of the burner body 100 has no need to be excessively long. As a result, the gas burner can be easily mounted and placed eventually.

[0043] In some embodiments, the above-mentioned portion of the first ejection cavity 120 adjacent to the flow guide cavity 130 is a first portion 121. A portion of the first ejection cavity 120 facing away from the flow guide cavity 130 is a second portion 122. The flow guide cavity 130 is formed opposite to the first portion 121 of the first ejection cavity 120. That is, the flow guide cavity 130 is not formed along a longitudinal direction of the first ejection cavity 120. Accordingly, the overall structure by connecting the flow guide cavity 130 to the first injection cavity 120 is more compact. The above-mentioned gas supply cavity 140 is formed opposite to the second portion 122 of the first ejection cavity 120, and therefore each of the flow guide cavity 130 and the gas supply cavity 140 is formed on one side of the first ejection cavity 120. In this way, the first ejection cavity 120, the flow guide cavity 130, and the gas supply cavity 140 are more compact in structure. Therefore, a smaller space is occupied in the burner body 100. Correspondingly, a volume of the burner body 100 can also be reduced.

[0044] The above-mentioned gas supply cavity 140 may also adhere to an outer wall of the first ejection cavity 120. In some embodiments, the outer wall of the first ejection cavity 120 is an inner wall of the gas supply cavity 140, and an outer wall of the gas supply cavity 140 is the inner wall of the first ejection cavity 120. Therefore, there is no gap between the first ejection cavity 120 and the gas supply cavity 140. Thus, an internal structure of the burner body 100 is more compact.

[0045] In some embodiments, the air supply cavity 140 comprises a first cavity portion 141 and a second cavity portion 142. In some embodiments, the first cavity portion 141 is surrounded by the first cavity portion 142. The mixed gas of the gaseous fuel and the air may enter the first cavity portion 141 and the second cavity portion 142, and the mixed gas in each of the first cavity portion 141 and the second cavity portion 142 may be ignited by the ignition device. In this way, a central flame is generated above the first cavity portion 142, and a peripheral flame is generated around the center flame above the first cavity portion 141. The central flame and the peripheral flame act on a to-be-heated object simultaneously, and therefore the to-be-heated object can be uniformly heated. As a result, the gas stove with this gas burner has a better heating effect.

[0046] The above-mentioned first cavity portion 141 may also be opposite to or intersected with the second cavity portion 142, and a specific setting mode of the first cavity portion 141 and the second cavity portion 142 is not limited in the present disclosure.

[0047] The first cavity portion 141 is in communication with the flow guide cavity 130, and the mixed gas in the gas mixing cavity 110 passes through the first injection cavity 120 and the flow guide cavity 130 and then enters the first cavity portion 141. The burner body 100 further has a second ejection cavity 150, and the second ejection cavity 150 has an end in communication with the gas mixing cavity 110 and another end in communication with the second cavity 142. Therefore, the mixed gas in the gas mixing cavity 110 may partially enter the second cavity 142 through the second injection cavity 150. Thus, the second cavity 142 is filled with the mixed gas. The mixed gas is injected into the first cavity portion 141 and the second cavity portion 142 through the first ejection cavity 120 and the second ejection cavity 150 respectively. Since the first injection cavity 120 and the second injection cavity 150 are independent of each other, airflow passing through the first injection cavity 120 is likewise independent of airflow passing through the second injection cavity 150 without any interference. As a result, an amount of the mixed gas in the first cavity portion 141 and an amount of the mixed gas of the second cavity portion 142 remain stable. Thus, the flame formed above the first cavity portion 141 and the flame formed above the second cavity portion 142 remain stable eventually.

[0048] In some embodiments, the second ejection cavity 150 may be misaligned with a center of the second cavity portion 142 in a longitudinal direction thereof. In some embodiments, a flow direction of the mixed gas discharged from the second ejection cavity 150 does not directly face towards the center of the second cavity portion 142. Therefore, the mixed gas needs a time period to diffuse and fill the second cavity 142 after entering the second cavity 142, and the mixed gas may be further mixed within the second cavity portion 142 after entering the second cavity portion 142. Thus, the gaseous fuel and the air are in contact with each other more sufficiently. As a result, the mixed gas in the second cavity portion 142 is combusted more sufficiently eventually.

[0049] A cross section of the second cavity portion 142 in a height direction thereof may be in a circle shape, and therefore the second cavity portion 142 has a cylindrical structure as a whole. Correspondingly, the inner wall of the second cavity portion 142 is an arc-shaped inner wall, and the inner wall of the second cavity portion 142 serves to guide the mixed gas. The mixed gas entering the second cavity portion 142 through the second ejection cavity 150 may follow the arc-shaped inner wall of the second cavity 142 under the influence of the Coanda effect. In this way, a concentration of the mixed gas in everywhere in the second cavity portion142 can be balanced. At the same time, a longitudinal direction of the second ejection cavity 150 may be tangential to the second cavity portion 142. Therefore, the second ejection cavity 150 may be at an edge of the second cavity portion 142, and the second injection cavity 150, and the mixed gas entering the second cavity portion 142 through the second ejection cavity 150 is farthest from the center of the second cavity portion 142.

[0050] The above-mentioned cross section of the second cavity portion 142 in the height direction thereof may also be in a rectangular shape. An end of the second ejection cavity 150 may be configured to be connected to an edge and corner of the second cavity portion 142. Therefore, there may a maximum distance between a connection between the second ejection cavity 150 and the second cavity portion 142 and the center of the second cavity portion 142. In this way, the above-mentioned effect that the second ejection cavity 150 is tangential to the edge of the second cavity portion 142 can also be achieved.

[0051] In order to enable the mixed gas to be more fully mixed in the process of passing through the second ejection cavity 150, the second ejection cavity 150 may be bent, and specifically, "spiral bending" or "Z-shaped bending" may be used. In this way, a length of the second ejection cavity 150 can be increased, so that the path length of the mixed gas reaching the second cavity 142 is longer. A specific shape of the second ejection cavity 150 is not limited in the present disclosure.

[0052] In some embodiments, the second ejection cavity 150 has a third end in communication with the second cavity portion 142 and a fourth end in communication with the gas mixing cavity 110. The third end bends towards the fourth end. In this way, the second cavity portion 142 connected to the third end is relatively close to the gas mixing cavity 110. Therefore, a length of an overall structure of connection between the second ejection cavity 150 and the second cavity portion 142 is shorter. Thus, the length of the burner body 100 is reduced. As a result, the gas burner can be easily mounted and placed eventually.

[0053] In some embodiments, the second cavity portion 142 is located at a side in the longitudinal direction of the second ejection cavity 150, and a projection of the second cavity portion 142 on the second ejection cavity 150 is located in the second ejection cavity 150. In this way, the overall structure formed by connecting the second cavity portion 142 to the second ejection cavity 150 can be more compact. Therefore, the second ejection cavity 150 and the second cavity portion 142 can be easily formed in the burner body 100.

[0054] In some embodiments, a partition plate 300 may be disposed in the gas mixing cavity 110, and the partition plates 300 divides the gas mixing cavity 110 into a plurality of regions. In some embodiments, a first gas mixing portion 114 and a second gas mixing portion 115 are located at two sides of the partition plate 300 respectively. In this way, gaseous fuel entering the gas mixing cavity 110 through the gas inlet 111 is divided into two parts by the partition plate 300, and the two parts of gaseous fuel are located in the first gas mixing portion 114 and the second gas mixing portion 115 respectively. Air entering the gas mixing cavity 110 through the first air inlet 112 is also divided into two parts by the partition plate 300, and the two parts of air enter the first gas mixing portion 114 and the second gas mixing portion 115 respectively. Gaseous fuel and air in the first gas mixing portion 114 are separately mixed with each other. Likewise, gaseous fuel and air in the second gas mixing portion 115 are also separately mixed with each other.

[0055] The first gas mixing portion 114 is in communication with the first ejection cavity 120, and mixed gas in the first gas mixing portion 114 may enter the first cavity portion 141 through the first ejection cavity 120 and the flow guide cavity 130. The second gas mixing portion 115 is in communication with the second ejection cavity 150, and mixed gas in the second gas mixing portion 115 may enter the second cavity portion 142 through the second ejection cavity 150. In this way, interference between mixed gas entering the first ejection cavity 120 and mixed gas entering the second ejection cavity 150 can be avoided. Therefore, flow volume of the mixed gas entering the first cavity 141 and flow volume of the mixed gas entering the second cavity 142 remains stable. Thus, the burning flame above the first cavity 141 and the burning flame above the second cavity 142 can remain stable.

[0056] The partition plate 300 is detachably disposed in the gas mixing cavity 110. After the partition plate 300 is detached from the gas mixing cavity 110, a space in the gas mixing cavity 110 can be increased. In this way, the components can be easily mounted in the gas mixing cavity 110, or the components in the gas mixing cavity 110 can be easily detached. In some embodiments, a nozzle in communication with a gaseous fuel pipeline is formed in the gas mixing cavity 110, and therefore the gaseous fuel may enter the gas mixing cavity 110. After the partition plate 300 is detached, a larger operation space is available to an operator. Thus, the nozzle can be easily detached from the gas mixing cavity 110, or can be easily mounted in the gas mixing cavity 110. After the partition plate 300 is detached, other components can also be easily mounted in or detached from the gas mixing cavity 110.

[0057] In order to detachably mount the partition plate 300 in the gas mixing cavity 110, a mounting groove 116 may be formed at an inner wall of the gas mixing cavity 110, and a shape of the mounting groove 116 mates with the partition plate 300. Therefore, the partition plate 300 may be inserted into the mounting groove 116. Thus, the partition plate 300 is fixed in the gas mixing cavity 110. In some embodiments, when the partition plate 300 is disposed in the mounting groove 116, a side of the partition plate 300 facing away from the mounting groove 116 may abut against the inner wall of the gas mixing cavity 110. In this way, the partition plate 300 can remain stable.

[0058] The mounting groove 116 has a fifth end and a sixth end opposite to the fifth end. The fifth end is provided with a notch, and therefore the partition plate 300 may be inserted into the mounting groove through the notch. The sixth end is located at a bottom of the mounting groove 116. A portion of the mounting groove adjacent to the fifth end has a width greater than a width of a portion of the mounting groove adjacent to the sixth end, and therefore the mounting groove 116 may have a structure with a wide top and a narrow bottom. Correspondingly, the partition plate 300 also has a structure with a relatively thick side thereof and another relatively thin side thereof. In this way, the partition plate 300 can be easily inserted into the mounting groove 116 and remain stable after being completely inserted into the mounting groove 116.

[0059] In some embodiments, the gas mixing cavity 110 further has a second air inlet 113, and therefore the gas mixing cavity 110 has a plurality of air inlets to increase air flow volume. In some embodiment, when the gas stove is required to generate a flame at a higher intensity, flow volume of the gaseous fuel passing through the gas inlet 111 can be increased. At the same time, there is an increased demand of the air flow volume.

[0060] The second air inlet 113 may be configured as a structure capable of being opened and closed. In some embodiments, when flow volume of the gaseous fuel entering the mixing cavity 110 through the gas inlet 111 is smaller, the second air inlet 113 may be in a closed state. In this case, the external air may only enter the gas mixing cavity 110 through the first air inlet 112. Therefore, an amount of air entering the gas mixing cavity 110 can be matched with an amount of the gaseous fuel entering the gas mixing cavity 110 through the gas inlet 111. Thus, each component of the mixed gas can reach a concentration at an optimum level.

[0061] When flow volume of the gaseous fuel entering the gas mixing cavity 110 through the gas inlet 111 is increased, the second air inlet 113 may be in an opened state to increase flow volume of air into the gas mixing cavity 110. Therefore, an amount of the air in the gas mixing cavity 110 is matched with an amount of the gaseous fuel.

[0062] In some embodiments, a detachable seal plate 400 is disposed at the burner body 100. When the seal plate 400 is connected to the burner body 100, the seal plate 400 is configured to block the second air inlet 113. Therefore, the second air inlet 113 is closed. When the seal plate 400 is detached from the second air inlet 113, the second air inlet 113 is in an open state. A screw hole may be formed on the burner body 100 along an edge of the second air inlet 113, and a screw hole corresponding to the screw hole on the furnace head body 100 may be formed on the seal plate 400. After the screw holes on the above-mentioned burner body 100 and seal plate 400 are aligned with each other and screwed by a bolt, the seal plate 400 may be fixed to the burner body 100 to block the second air inlet 113. Thus, the seal plate 400 is tightly connected to the burner body 100 through a bolt connection. The seal plate and the burner body 100 may also be connected to each other through a snap, and therefore the seal plate 400 can be easily detached. A specific connection mode between the seal plate 400 and the burner body 100 is not limited in the present disclosure.

[0063] Referring to FIG. 7 to FIG. 9, based on the above-mentioned gas burner, the present disclosure further provides a gas stove. The gas stove includes the above-mentioned gas burner.

[0064] The above-mentioned gas stove further includes a gas distribution disc 500 disposed on the burner body 100 and opposite to the air supply cavity 140. In some embodiments, the gas distribution disc 500 is disposed above the gas supply cavity 140 and is configured to eject secondary air. Therefore, the external air may also enter the gas supply cavity 140 through the gas distribution disc 500 to allow for more complete burning of the mixed gas in the gas supply cavity 140. A first connector 160 may be disposed on the burner body 100, and a second connector 510 may be disposed on the gas distribution disc 500. The first connector 160 cooperates with the second connector 510, allowing the gas distribution disc 500 to be fixed on the burner body 100, and limiting a movement of the gas distribution disc 500 in a radial direction thereof.

[0065] In some embodiments, the first connector 160 may be a step formed on the burner body 100, and the second connector 510 may be a step formed on the gas distribution disc 500. The step on the burner body 100 and the step on the gas distribution disc 500 are engaged with each other, and therefore the gas distribution disc 500 may be snapped on the burner body 100 to limit the movement of the gas distribution disc 500 in the radial direction thereof. As a result, the gas distribution disc 500 can remain stable.

[0066] It should be noted that the gas burner disclosed by the present disclosure may also be applied to other gas stoves, for example, a gas stove using liquid fuel as a raw material.

[0067] The above-mentioned embodiments are preferred embodiments of the present disclosure, and are only used to facilitate the description of the present disclosure, and are not intended to limit the present disclosure in any form. Partial changes or modifications in the equivalent embodiments made to the disclosed technical content of the present disclosure by those skilled in the art, within the scope of the technical features mentioned in the present disclosure, and without departing from the technical scope of the present disclosure, are still considered as falling within the scope of the technical features of the present disclosure.

Claims

1. A gas burner, comprising a burner body having a gas mixing cavity, a first ejection cavity, a flow guide cavity, a gas supply cavity, a gas inlet, and a first air inlet, wherein

the gas inlet and the first air inlet are in communication with the gas mixing cavity;
the gas mixing cavity and the flow guide cavity are formed at two sides of the gas supply cavity respectively;
the flow guide cavity is in communication with the gas supply cavity;
two ends of the first ejection cavity are in communication with the gas mixing cavity and the gas supply cavity respectively;
the first ejection cavity is in communication with the flow guide cavity through a curved transition; and
the flow guide cavity is in communication with the air supply cavity through a curved transition.

2. The gas burner according to claim 1, wherein:

the first ejection cavity has a first end communicating with the flow guide cavity and a second end communicating with the gas mixing cavity; and
an end of the flow guide cavity communicating with the gas supply cavity bends towards the second end.

3. The gas burner according to claim 2, wherein the gas supply cavity adheres to an outer wall of the first ejection cavity.

4. The gas burner according to claim 1, wherein:

the burner body further has a second ejection cavity; and
the gas supply cavity comprises a first cavity portion and a second cavity portion surrounded by the first cavity portion, the first cavity portion being in communication with the flow guide cavity, and the second ejection cavity having an end in communication with the gas mixing cavity and another end in communication with the second cavity portion.

5. The gas burner according to claim 4, wherein a longitudinal direction of the second ejection cavity misaligns with a center of the second cavity portion.

6. The gas burner according to claim 5, wherein:

the longitudinal direction of the second ejection cavity is tangential to an edge of the second cavity portion; and
the second ejection cavity is connected to the second cavity portion through a curved transition.

7. The gas burner according to claim 6, wherein the second ejection cavity has a third end connected to the second cavity portion and a fourth end connected to the gas mixing cavity, the third end bending towards the fourth end.

8. The gas burner according to claim 4, wherein the gas mixing cavity is provided with a partition plate configured to divide the gas mixing cavity into a first gas mixing portion in communication with the first ejection cavity and a second gas mixing portion in communication with the second ejection cavity.

9. The gas burner according to claim 8, wherein the partition plate is detachably disposed in the gas mixing cavity.

10. The gas burner according to claim 9, wherein an inner wall of the gas mixing cavity is provided with a mounting groove mating with the partition plate, the mounting groove having a fifth end and a sixth end opposite to the fifth end, the fifth end being provided with a notch, and part of the mounting groove adjacent to the fifth end having a width greater than a width of part of the mounting groove adjacent to the sixth end.

11. The gas burner according to claim 1, wherein the burner body further has a second air inlet in communication with the gas mixing cavity, the second air inlet being provided with a seal plate which is detachably connected to the second air inlet and is configured to open up or close off the second air inlet.

12. A gas stove, comprising the gas burner according to any one of claims 1 to 11.

13. The gas stove according to claim 12, further comprising a gas distribution disc disposed on the burner body and opposite to the gas supply cavity, the burner body being provided with a first connector, the gas distribution disc being provided with a second connector, and the first connector cooperating with the second connector to limit a movement of the gas distribution disc in a radial direction of the gas distribution disc.

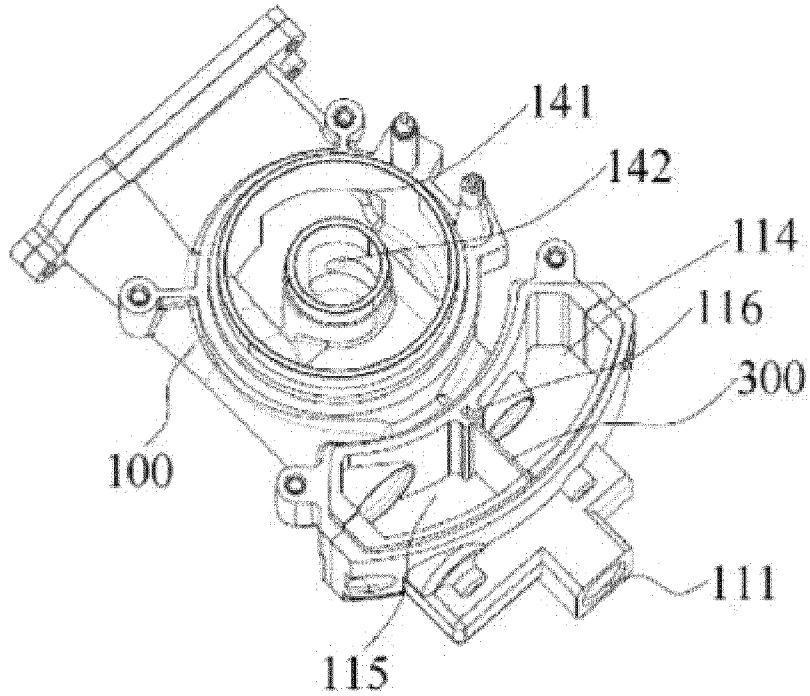


FIG. 1

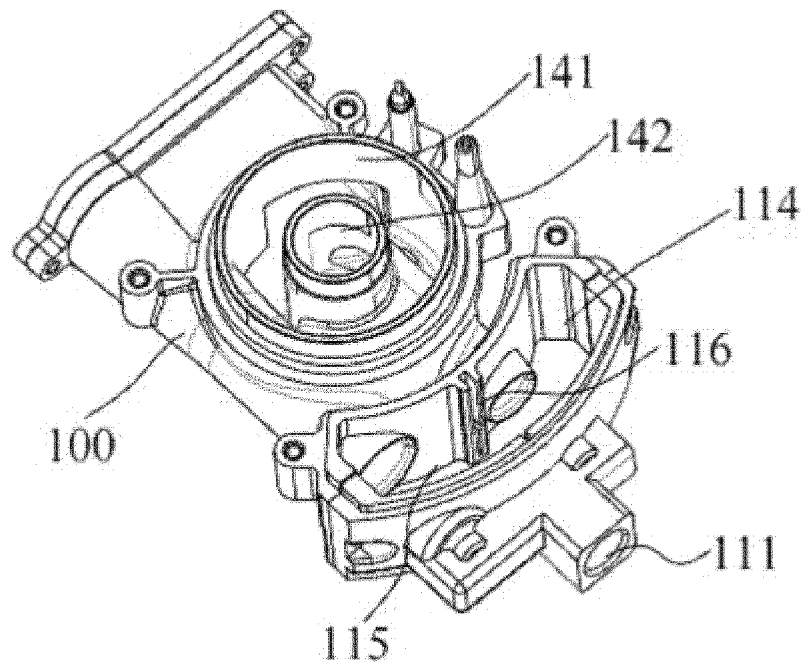
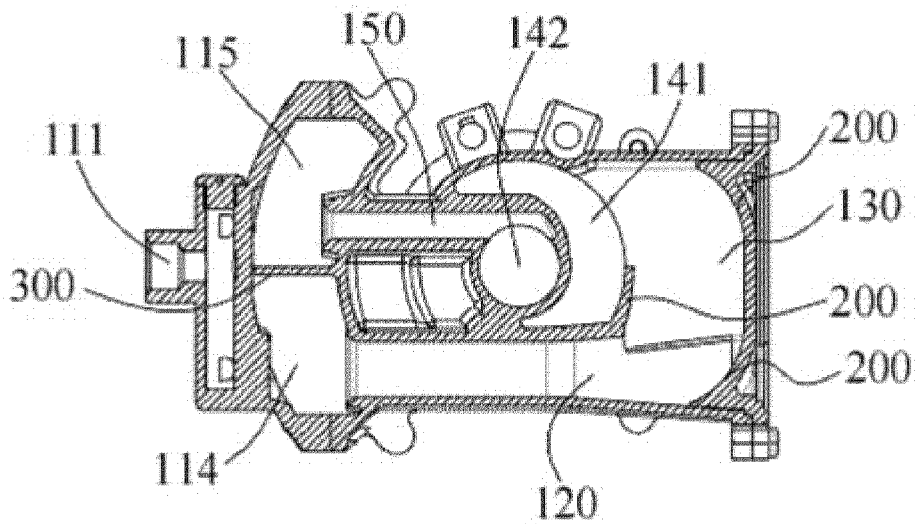


FIG. 2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200
114
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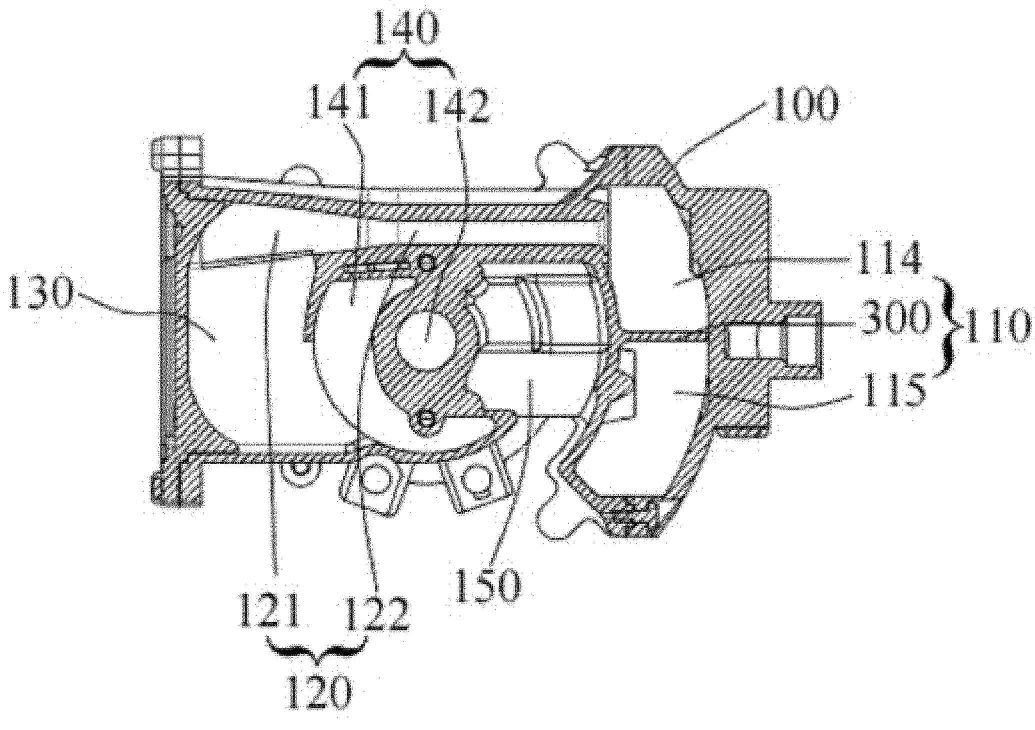
FIG. 3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120

FIG. 4

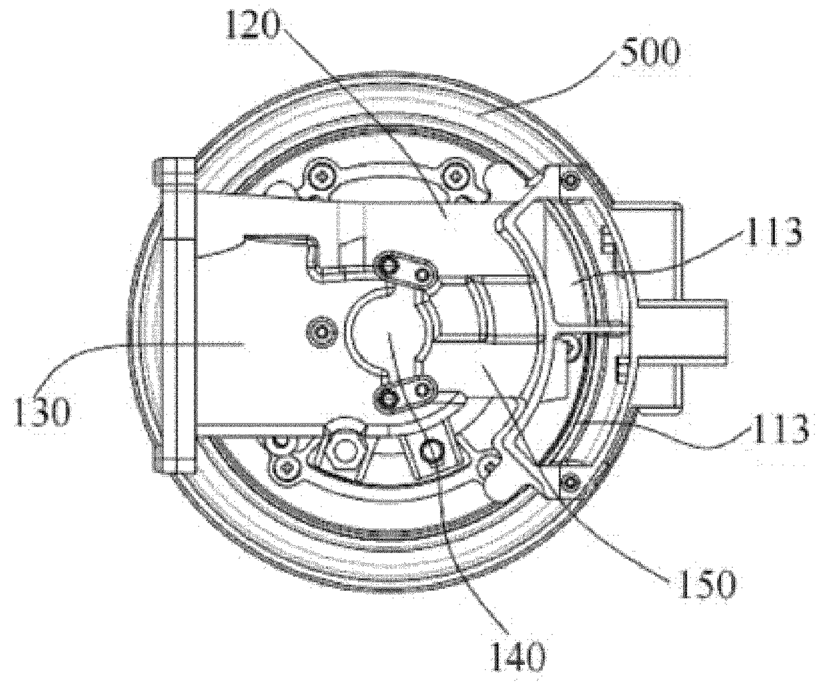

FIG. 5

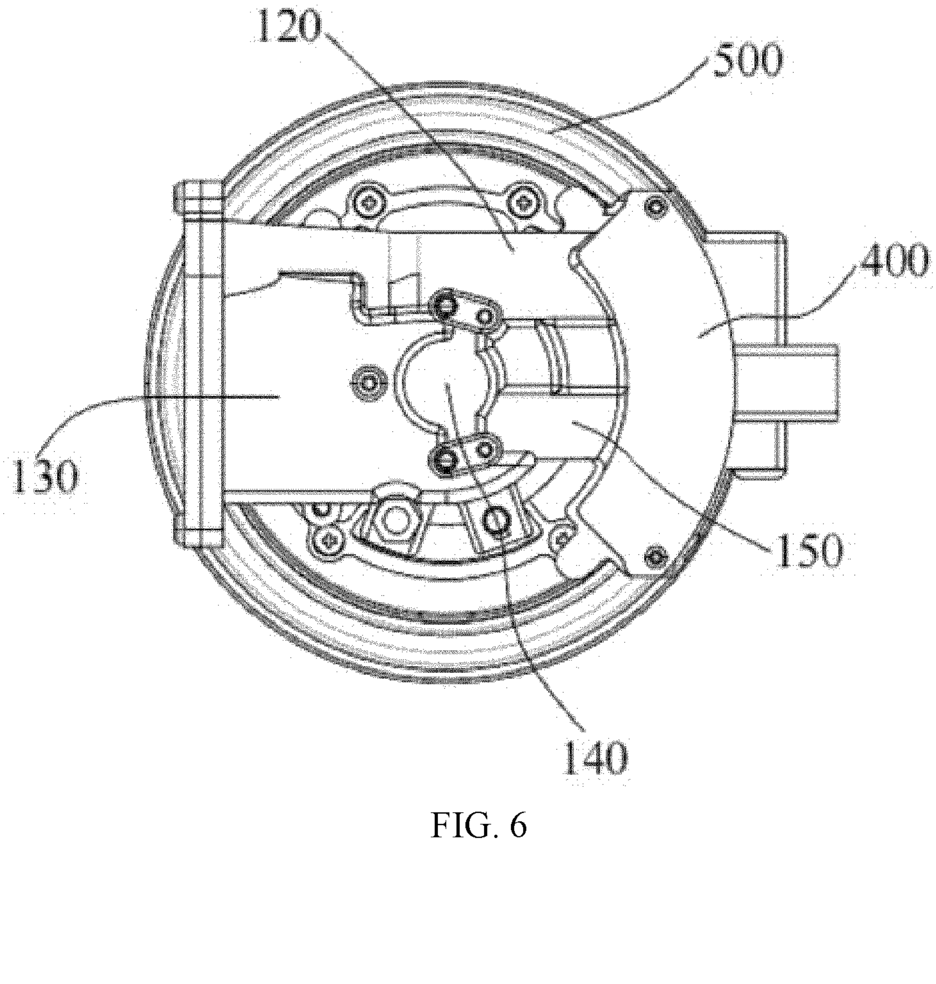

FIG. 6

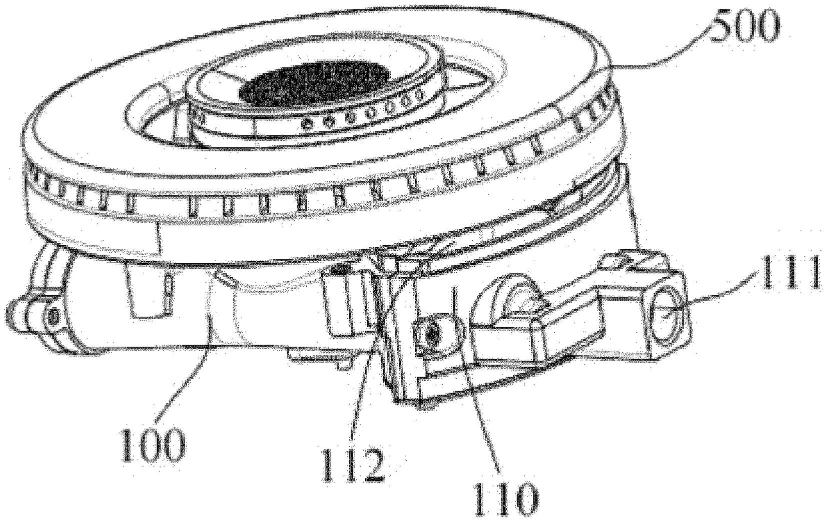

FIG. 7

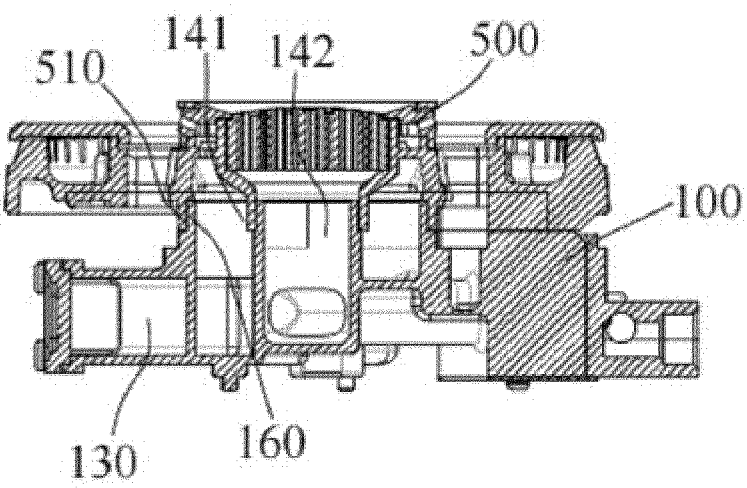

FIG. 8

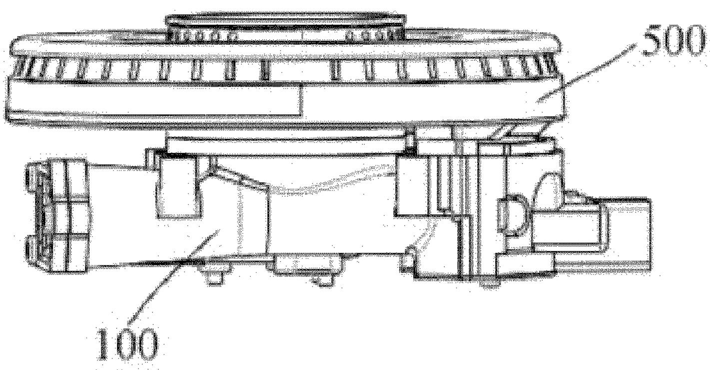

FIG. 9

INTERNATIONAL SEARCH REPORT

International application No. **PCT/CN2022/083296**

A. CLASSIFICATION OF SUBJECT MATTER

F23D 14/62(2006.01)i; F23D 14/02(2006.01)i

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)

F23D，F24C

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)

CNABS, CNTXT, CNKI, VEN: 燃烧器, 燃烧头, 炉头, 灶, 引射, 混合, 预混, 混气, 导流, 空气, 燃气, burner, combustor, stove, inject, venturi, mix+, guid+, air, gas

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 215570438 U (WUHU MEIDI INTELLIGENT KITCHEN ELECTRIC MANUFACTURING CO., LTD.) 18 January 2022 (2022-01-18) description, paragraphs [0050]-[0103], and figures 1-11	1-13
PX	CN 215570440 U (WUHU MEIDI INTELLIGENT KITCHEN ELECTRIC MANUFACTURING CO., LTD.) 18 January 2022 (2022-01-18) description, paragraphs [0053]-[0106], and figures 1-11	1-13
PX	CN 215570439 U (WUHU MEIDI INTELLIGENT KITCHEN ELECTRIC MANUFACTURING CO., LTD.) 18 January 2022 (2022-01-18) description, paragraphs [0050]-[0103], and figures 1-11	1-13
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☑ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
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- "O" document referring to an oral disclosure, use, exhibition or other means
- "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
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- "&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 May 2022	**23 May 2022**

Name and mailing address of the ISA/CN	Authorized officer
China National Intellectual Property Administration (ISA/CN) **No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China**	
Facsimile No. **(86-10)62019451**	Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2022/083296

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Information on patent family members

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