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# (54) BURNER AND COOKING APPLIANCE

(57) The present application discloses a burner and a cooking appliance. The burner comprises a first body and a second body; the second body and the first body are connected to each other by means of at least one first connecting structure; an accommodating cavity and a plurality of ignition holes are formed between the second body and the first body; the accommodating cavity is configured to be communicated with a gas pipeline; the plurality of ignition holes are arranged at intervals in a preset direction and are respectively communicated with the accommodating cavity; the plurality of ignition holes are used for gas ejection. The first body is arranged at the top of the second body; the first connecting structure blocks the communication between the ignition holes and the accommodating cavity at the connecting position of the first body and the second body; a first flame propagation flow channel is formed in the second body; the first flame propagation flow channel is arranged on the outer sides of the plurality of ignition holes; the first flame propagation flow channel is used for flame propagation between every two adjacent ignition holes. Flame in the first flame propagation flow channel can supplement flame at the position of a blocked ignition hole, so as to ignite the ignition holes on two adjacent sides of the blocked ignition hole, so that flame propagation is achieved, thereby avoiding the problem of poor flame propagation at riveting positions.

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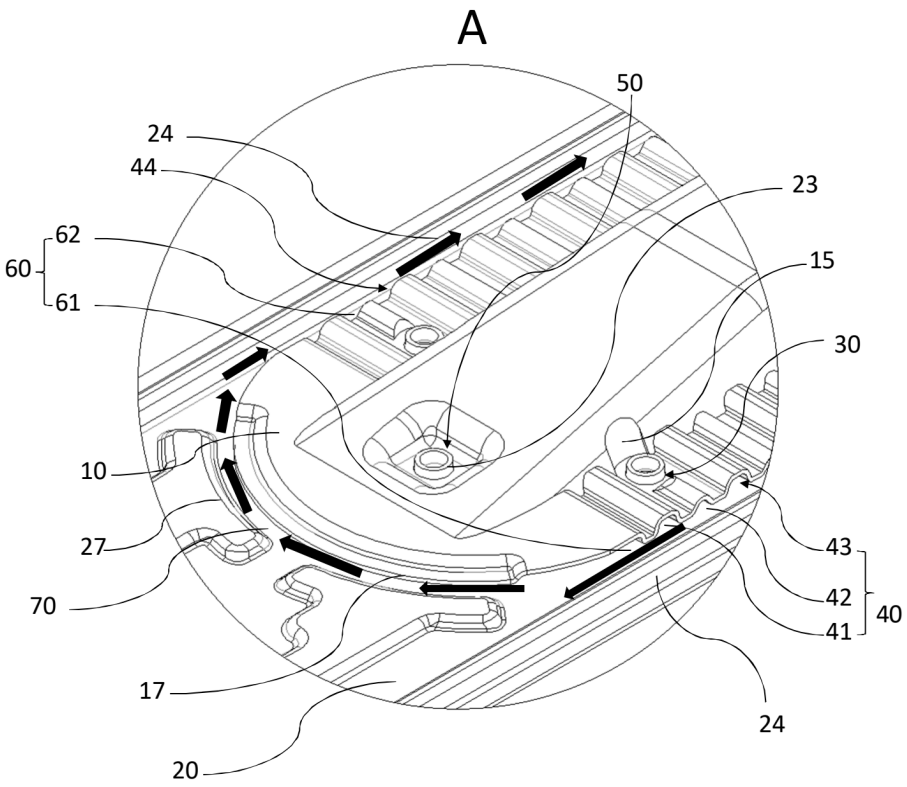


Fig.2

## Description

### CROSS-REFERENCE TO RELATED APPLICATIONS

**[0001]** The present application claims priority and benefits from the follow patent applications, the entire disclosures of which are incorporated herein by reference:

Chinese patent application No. 202310279368.5, entitled "BURNER, COMBUSTION ASSEMBLY AND COOKING APPLIANCE" and filed with China National Intellectual Property Administration on March 20, 2023;

Chinese patent application No. 202310277389.3, entitled "BURNER AND COOKING APPLIANCE" and filed with China National Intellectual Property Administration on March 20, 2023;

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Chinese patent application No. 202310277138.5, entitled "BURNER AND COOKING APPLIANCE" and filed with China National Intellectual Property Administration on March 20, 2023;

Chinese patent application No. 202310276597.1, entitled "BURNER AND COOKING APPLIANCE" and filed with China National Intellectual Property Administration on March 20, 2023; and

Chinese patent application No. 202310276521.9, entitled "BURNER AND COOKING APPLIANCE" and filed with China National Intellectual Property Administration on March 20, 2023.

### TECHNICAL FIELD

**[0002]** The present application relates to the technical field of household appliances, and in particular to a burner and a cooking appliance.

### BACKGROUND

**[0003]** This section only provides background information relevant to the present disclosure, which is not necessarily the prior art.

**[0004]** Gas powered cooking appliances typically comprise a combustion assembly that utilizes the combustion of gas to provide heat for the cooking process of the cooking appliances.

**[0005]** Existing sheet metal type burners usually comprise an upper plate and a lower plate. The structure of the burner is formed by riveting the upper plate and the lower plate, and fire holes of the burner are formed at the connection positions of the upper plate and the lower plate. However, the riveting positions are set close to the edge of the burner, and some of the fire holes are blocked by the riveting positions. Gas cannot be sprayed from the blocked fire holes, resulting in the problem of poor fire transmission at the riveting positions.

### SUMMARY

**[0006]** An object of the present application is to at least solve the problem of poor fire transmission at the riveting positions of existing burners, and this object is achieved through the following technical solution: a first aspect of the present application provides a burner, which comprises a first body and a second body, where the second body and the first body are connected to each other through at least one first connection structure, and an accommodation cavity and a plurality of fire holes are formed between the second body and the first body; the accommodation cavity is used for communication with a gas pipeline; the plurality of fire holes are arranged at an interval in a preset direction and are respectively communicated with the accommodation cavity, and the plurality of fire holes are used for spraying gas;

**[0007]** the first body is arranged at the top of the second body, and at the connection position between the first body and the second body, the first connection structure blocks the communication between the fire hole and the accommodation cavity; the second body is provided with a first fire transmission channel, wherein the first fire transmission channel is arranged on the outer side of the plurality of fire holes, and is used for fire transmission between two adjacent fire holes.

**[0008]** According to the burner of the present application, the first body and the second body are connected and fixed to each other through the first connection structure, and the fire holes and the accommodation cavity are formed between the first body and the second body; the gas in the gas pipeline can be sprayed out through the fire holes after entering the accommodation cavity, and the combustion of the burner is achieved by ignition. During the combustion process of the burner, there is a flame in the first fire transmission channel, and the flame in the first fire transmission channel can transmit fire to two adjacent fire holes. The position of the first connection structure is set to block the connection between the fire hole and the accommodation cavity. The flame in the first fire transmission channel can supplement the position of the blocked fire hole, thereby inducing the fire holes on two adjacent sides of the blocked fire hole to burn, thereby achieving fire transmission and thus avoiding the problem of poor fire transmission at the riveting position.

**[0009]** In addition, the burner according to the present application may also have the following additional technical features.

**[0010]** In some embodiments of the present application, the second body is provided with a first blocking

structure. The first blocking structure is arranged on the outer side of the plurality of fire holes in a spaced-apart manner, and extends in a direction along which the plurality of fire holes are arranged at the interval, and an area spaced apart between the first blocking structure and the plurality of fire holes defines the first fire transmission channel.

**[0011]** In some embodiments of the present application, the distance between the first blocking structure and the fire hole is L, where $L \in [0.5mm, 8mm]$.

**[0012]** In some embodiments of the present application, in the thickness direction of the second body, the size of the first blocking structure is M, and the size of the fire hole is N, where $0<M\leq 2N$.

**[0013]** In some embodiments of the present application, the first blocking structure is a first protruding structure formed on the second body.

**[0014]** In some embodiments of the present application, the first blocking structure is a first flanging structure formed at the edge of the second body.

**[0015]** In some embodiments of the present application, the plurality of fire holes form a first fire hole side and a second fire hole side on two opposite sides of the burner; a number of the first connection structure is multiple, and two adjacent first connection structures are arranged at an interval; all of the first connection structures comprise a first part and a second part, wherein the first part is arranged corresponding to the first fire hole side, and the second part is arranged corresponding to the second fire hole side; and

**[0016]** the first fire transmission channel comprises a first channel part and a second channel part, wherein the first channel part corresponds to the outer side of the first fire hole side, and the second channel part corresponds to the outer side of the second fire hole side.

**[0017]** In some embodiments of the present application, at least one fire transmission hole is further provided between the first body and the second body, and the at least one fire transmission hole is communicated with the accommodation cavity and used for spraying gas; the second body is further provided with a second fire transmission channel, wherein the second fire transmission channel is located on the outer side of the at least one fire transmission hole; the first channel part is communicated with the second fire transmission channel through the second fire transmission channel.

**[0018]** In some embodiments of the present application, a second blocking structure is provided on the second body, and the second blocking structure is arranged on the outer side of the at least one fire transmission hole in a spaced-apart manner, and an area spaced apart between the second blocking structure and the at least one fire transmission hole defines the second fire transmission channel.

**[0019]** In some embodiments of the present application, the second blocking structure is a second protruding structure formed on the second body.

**[0020]** In some embodiments of the present application, the second blocking structure is a second flanging structure formed at the edge of the second body.

**[0021]** A second aspect of the present application provides a cooking appliance, which comprises the burner as described in the first aspect.

**[0022]** According to the cooking appliance of the present application, the first body and the second body of the burner are connected and fixed to each other through the first connection structure, and the fire holes and the accommodation cavity are formed between the first body and the second body; the gas in the gas pipeline can be sprayed out through the fire holes after entering the accommodation cavity, and the combustion of the burner is achieved by ignition. During the combustion process of the burner, there is a flame in the first fire transmission channel, and the flame in the first fire transmission channel can transmit fire to two adjacent fire holes. The position of the first connection structure is set to block the connection between the fire hole and the accommodation cavity. The flame in the first fire transmission channel can supplement the position of the blocked fire hole, thereby inducing the fire holes on two adjacent sides of the blocked fire hole to burn, thereby achieving fire transmission and thus avoiding the problem of poor fire transmission at the riveting position.

**[0023]** A third aspect of the present application provides a burner, which comprises:

a first body; and

a second body, which is connected to the first body through at least one first connection structure, where an accommodation cavity and multiple fire holes are formed between the second body and the first body; the accommodation cavity is used for communication with a gas pipeline, and the multiple fire holes are communicated with the accommodation cavity and are used for spraying gas;

the first connection structure is spaced apart from the edge of the burner, and at the connection position between the first body and the second body, the first connection structure blocks the communication between the fire hole and the accommodation cavity; or the first connection structure is located at the edge of the burner, and the first connection structure is located between two adjacent fire holes.

**[0024]** According to the burner of the present application, the first body and the second body are connected and fixed to each other through the first connection structure, where the fire holes and the accommodation cavity are formed between the first body and the second body; the gas in the gas pipeline can be sprayed out through the fire holes after entering the accommodation cavity, and the combustion of the burner is achieved by ignition. By setting the position of the first connection structure to be spaced apart from the edge of the burner

and block the fire hole, or setting the first connection structure to be located at the edge of the burner and between two adjacent fire holes, it is possible to arrange the first connection structure close to the position of the fire hole to reduce the deformation of the burner after long time use and ensure stable and safe operation of the burner.

**[0025]** In addition, the burner according to the present application may also have the following additional technical features.

**[0026]** In some embodiments of the present application, the multiple fire holes form a first fire hole side and a second fire hole side on two opposite sides of the burner; the number of the first connection structure is multiple, and two adjacent first connection structures are spaced apart; all the first connection structures comprise a first part and a second part, with the first part arranged corresponding to the first fire hole side, and the second part arranged corresponding to the second fire hole side.

**[0027]** In some embodiments of the present application, the number of the first part is equal to the number of the second part, and the first connection structures of the first part and the first connection structures of the second part are arranged in a one-to-one correspondence;
and/or the number of the fire holes on the first fire hole side is the same as the number of the fire holes on the second fire hole side.

**[0028]** In some embodiments of the present application, the first connection structure is spaced apart from the edge of the burner, and the multiple fire holes comprise:

main fire holes, where the number of the main fire holes is multiple, and two adjacent main fire holes are spaced apart; and

auxiliary fire holes, where the number of the auxiliary fire holes is multiple, and one auxiliary fire hole is arranged between every two adjacent main fire holes; at the connection position between the first body and the second body, the first connection structure blocks the communication between the auxiliary fire hole and the accommodation cavity.

**[0029]** In some embodiments of the present application, the connection position between the first body and the second body is the communication position between the auxiliary fire hole and the accommodation cavity.

**[0030]** In some embodiments of the present application, the first body is provided with a first connection part, the second body is provided with a second connection part, and the first connection part cooperates with the second connection part to form the first connection structure; and
one of the first connection part and the second connection part is a protruding structure, the other of the first connection part and the second connection part is a hole structure, and the protruding structure is riveted and matched with the hole structure.

**[0031]** In some embodiments of the present application, the protruding structure is a flanging hole with a flanging, and the flanging is riveted and matched with the hole structure.

**[0032]** In some embodiments of the present application, an avoidance structure is provided radially outside the hole structure, and is arranged around the circumference of the hole structure.

**[0033]** In some embodiments of the present application, the burner further comprises a fastener; the first body is provided with a first hole and the second body is provided with a second hole, and the fastener matches with the first hole and the second hole respectively to form the first connection structure.

**[0034]** In some embodiments of the present application, the first connection structure is located at the edge of the burner, and a flanging structure is formed at the edge of one of the first body and the second body; the flanging structure is located between two adjacent fire holes, and is bent to abut against the other of the first body and the second body to form the first connection structure.

**[0035]** In some embodiments of the present application, the burner further comprises at least one second connection structure, and the second body and the first body are further connected to each other through the at least one second connection structure.

**[0036]** A fourth aspect of the present application provides a cooking appliance, which comprises the burner as described above in the third aspect.

**[0037]** According to the cooking appliance of the present application, the first body and the second body of the burner are connected and fixed to each other through the first connection structure, where the fire holes and the accommodation cavity are formed between the first body and the second body; the gas in the gas pipeline can be sprayed out through the fire holes after entering the accommodation cavity, and the combustion of the burner is achieved by ignition. By setting the position of the first connection structure to be spaced apart from the edge of the burner and block the fire hole, or setting the first connection structure to be located at the edge of the burner and between two adjacent fire holes, it is possible to arrange the first connection structure close to the position of the fire hole to reduce the deformation of the burner after long time use and ensure stable and safe operation of the burner.

**[0038]** A fifth aspect of the present application provides a burner, which is used in a cooking appliance, and which is formed with:

an accommodation cavity, which is used for communication with a gas pipeline;

a fire hole group, which is communicated with the accommodation cavity; and

a fire transmission structure, which is located on the

outer side of the accommodation cavity and is communicated with the fire hole group, where at least part of the fire transmission structure is communicated with the accommodation cavity;

the cooking appliance has an ignition site, and the fire transmission structure and the fire hole group are both offset from the ignition site of the cooking appliance.

**[0039]** According to the burner of the present application, when the burner is used in a cooking appliance, the burner is installed inside the body of the cooking appliance, and the fire transmission structure is offset from the ignition site of the cooking appliance. When it is necessary to ignite the burner, the ignition element can be used at the ignition site to ignite the gas sprayed from the fire transmission structure.

**[0040]** The ignition element ignites the burner through the fire transmission structure formed on the burner. Compared with the prior art, there is no need to provide a separate ignition barrel, saving materials and assembly processes, and thereby reducing the manufacturing cost. In addition, when the burner is used in the cooking appliance, its fire transmission structure is offset from the ignition site, reducing the situation where the combustion heat of the burner directly enters the cooking chamber through the ignition site, thereby improving the uniformity of heating temperature.

**[0041]** In addition, the burner according to the present application may also have the following additional technical features.

**[0042]** In some embodiments of the present application, the burner comprises:

a first body; and

a second body, which is matched with the first body to form the accommodation cavity.

**[0043]** In some embodiments of the present application, the fire hole group is formed at the connection positions between the first body and the second body.

**[0044]** In some embodiments of the present application, the first body is located at the top of the second body, the fire transmission structure is located on the second body, and the fire transmission structure extends along the connection positions between the first body and the second body.

**[0045]** In some embodiments of the present application, the fire hole group comprises:

a first fire hole group, which is arranged along the extension direction of the burner; and

a second fire hole group, which is arranged along the extension direction of the burner, where the second fire hole group and the first fire hole group are located on two opposite sides of the burner.

**[0046]** In some embodiments of the present application, the fire transmission structure comprises:

a first burning-induction section, which is communicated with the first fire hole group;

a second burning-induction section, which is communicated with the second fire hole group; and

a fire transmission section, which is communicated with the accommodation cavity;

two ends of the fire transmission section are respectively communicated with the first burning-induction section and the second burning-induction section, and the fire transmission section is arranged near the ignition site.

**[0047]** In some embodiments of the present application, the burner also has a first guide structure, one end of which is connected to the burner, and the other end of which is suspended and inclined toward the side away from the fire transmission structure; the first guide structure is used to guide the gas sprayed from the fire transmission structure to the ignition site.

**[0048]** In some embodiments of the present application, the burner also has a second guide structure, and the first guide structure is communicated with the fire transmission structure through the second guide structure.

**[0049]** In some embodiments of the present application, the first guide structure is a plate-shaped structure; and/or the second guide structure is a guide groove structure.

**[0050]** In some embodiments of the present application, a flame stabilization structure is further provided on the burner; the flame stabilization structure is arranged on the outer side of the fire transmission structure in a spaced apart manner, and the communication position between the fire transmission structure and the accommodation cavity is arranged corresponding to the flame stabilization structure; and

the first guide structure is located on the outer side of the flame stabilization structure, and the second guide structure penetrates the flame stabilization structure and is communicated with the fire transmission structure.

**[0051]** A sixth aspect of the present application provides a cooking appliance, which comprises:

a body, which is provided with a cooking chamber and an ignition site;

the burner as described above in the fifth aspect, where the burner is arranged inside the body and located on the outer side of the cooking chamber, and the fire transmission structure of the burner is

offset from the ignition site.

**[0052]** According to the cooking appliance of the present application, the burner is installed inside the body of the cooking appliance, and the fire transmission structure is offset from the ignition site of the cooking appliance. When it is necessary to ignite the burner, the ignition element can be used at the ignition site to ignite the gas sprayed from the fire transmission structure.

**[0053]** The ignition element ignites the burner through the fire transmission structure formed on the burner. Compared with the prior art, there is no need to provide a separate ignition barrel, saving materials and assembly processes, and thereby reducing the manufacturing cost. In addition, when the burner is used in the cooking appliance, its fire transmission structure is offset from the ignition site, reducing the situation where the combustion heat of the burner directly enters the cooking chamber through the ignition site, thereby improving the uniformity of heating temperature.

**[0054]** In some embodiments of the present application, the body comprises a receiver, which is located at the bottom of the cooking chamber and at the top of the burner, and the ignition site is an ignition hole formed on the receiver.

**[0055]** A seventh aspect of the present application provides a combustion assembly, which comprises a burner body, the burner body having:

an accommodation cavity, which is used for communication with a gas pipeline;

a first fire hole group, which is provided on the burner body and is communicated with the accommodation cavity;

a second fire hole group, which is provided on the burner body and is communicated with the accommodation cavity, where the second fire hole group and the first fire hole group are located on two opposite sides of the burner body; and

a fire transmission structure, which is located on the outer side of the accommodation cavity, where at least part of the fire transmission structure is communicated with the accommodation cavity, and the first fire hole group is communicated with the second fire hole group through the fire transmission structure.

**[0056]** According to the combustion assembly of the present application, when using the combustion assembly to burn the gas, the ignition element of the combustion assembly ignites the gas sprayed from the fire hole group on one side, and the fire transmission structure is used to ignite the gas sprayed from the fire hole group on the other side, so as to use the burner body to burn the gas and use the heat of combustion to cook food. The fire transmission structure is formed on the burner body, and the fire transmission structure is used to communicate the first fire hole group with the second fire hole group. Compared with the prior art, there is no need to set a flame stabilization plate or other structures, thus achieving structural simplification and assembly process simplification, and reducing the manufacturing cost of the combustion assembly.

**[0057]** In addition, the combustion assembly according to the present application may also have the following additional technical features.

**[0058]** In some embodiments of the present application, the burner body comprises:

a first body;
a second body, which is matched with the first body to form the accommodation cavity.

**[0059]** In some embodiments of the present application, the first fire hole group and the second fire hole group are respectively formed on the first body;
or the first fire hole group and the second fire hole group are respectively formed on the second body.

**[0060]** In some embodiments of the present application, the first fire hole group and the second fire hole group are respectively formed at the connection positions between the first body and the second body.

**[0061]** In some embodiments of the present application, the fire transmission structure is formed on the first body or the second body.

**[0062]** In some embodiments of the present application, the first body is located at the top of the second body, the fire transmission structure is located on the second body, and the fire transmission structure extends along the connection positions between the first body and the second body.

**[0063]** In some embodiments of the present application, the fire transmission structure comprises:

a first burning-induction section, which is communicated with the first fire hole group;

a second burning-induction section, which is communicated with the second fire hole group; and

a fire transmission section, which is communicated with the accommodation cavity, and two ends of which are respectively communicated with the first burning-induction section and the second burning-induction section.

**[0064]** In some embodiments of the present application, the extension direction of the first burning-induction section is consistent with that of the first fire hole group; and/or the extension direction of the second burning-induction section is consistent with that of the second fire hole group.

**[0065]** In some embodiments of the present applica-

tion, the burner body further comprises a communication hole group, and the fire transmission section is communicated with the accommodation cavity through the communication hole group.

**[0066]** In some embodiments of the present application, the burner body also has a flame stabilization structure, which is arranged on the outer side of the communication hole group in a spaced apart manner, and the fire transmission section is formed between the flame stabilization structure and the communication hole group.

**[0067]** In some embodiments of the present application, the combustion assembly further comprises:

an ignition element, which is connected to the burner body; and

a flame detection element, which is connected to the burner body, where the flame detection element is located on the same side as one of the first fire hole group and the second fire hole group, and the ignition element is located on the same side as the other of the first fire hole group and the second fire hole group.

**[0068]** An eighth aspect of the present application provides a cooking appliance, which comprises the combustion assembly as described above in the seventh aspect.

**[0069]** According to the cooking appliance of the present application, when using the combustion assembly to burn the gas, the ignition element of the combustion assembly ignites the gas sprayed from the fire hole group on one side, and the fire transmission structure is used to ignite the gas sprayed from the fire hole group on the other side, so as to use the burner body to burn the gas and use the heat of combustion to cook food. The fire transmission structure is formed on the burner body, and the fire transmission structure is used to communicate the first fire hole group with the second fire hole group. Compared with the prior art, there is no need to set a flame stabilization plate or other structures, thus achieving structural simplification and assembly process simplification, and reducing the manufacturing cost of the combustion assembly.

**[0070]** A ninth aspect of the present application provides a burner, which comprises a first body and a second body; the second body and the first body are connected to each other through at least one first connection structure; an accommodation cavity, a communication channel, and multiple fire holes are formed between the second body and the first body; the accommodation cavity is used for communication with a gas pipeline, and the multiple fire holes are communicated with the accommodation cavity and used for spraying gas;

**[0071]** the first connection structure is spaced apart from the edge of the burner, and at the connection position between the first body and the second body, the first connection structure blocks the communication between the fire hole and the accommodation cavity; each first connection structure is correspondingly provided with a communication channel, and the blocked fire hole is communicated with at least one adjacent fire hole through the communication channel.

**[0072]** According to the burner of the present application, the first body and the second body are connected and fixed to each other through the first connection structure; the fire holes and the accommodation cavity are formed between the first body and the second body. The gas in the gas pipeline enters the accommodation cavity and can be sprayed out through the fire holes, and the combustion of the burner is achieved by ignition. The position of the first connection structure is spaced apart from the edge of the burner, and blocks the communication between the fire hole and the accommodation cavity. The communication channel communicates the blocked fire hole with at least one adjacent fire hole, so that gas can enter the blocked fire hole and can be ignited after being sprayed from the blocked fire hole, thereby avoiding the problem of poor fire transmission at the riveting position.

**[0073]** In addition, the burner according to the present application may also have the following additional technical features.

**[0074]** In some embodiments of the present application, the first body has a first cavity and a first plate, and the first plate is arranged around the outer side of the opening of the first cavity; the second body has a second cavity and a second plate, and the second plate is arranged around the outer side of the opening of the second cavity;

**[0075]** the first cavity and the second cavity enclose to form the accommodation cavity; one of the first body and the second body is provided with a fire hole construction cavity, and the other of the first body and the second body is provided with a channel construction cavity; the plate of the other of the first body and the second body and the fire hole construction cavity enclose to form the multiple fire holes, and the channel construction cavity and the fire hole construction cavity enclose to form the communication channel.

**[0076]** In some embodiments of the present application, the fire hole construction cavity is a fire hole profile formed on the first plate, and the channel construction cavity is a channel profile formed on the second plate.

**[0077]** In some embodiments of the present application, the shape of the channel construction cavity is "-" shaped, U-shaped, or J-shaped.

**[0078]** In some embodiments of the present application, the multiple fire holes form a first fire hole side and a second fire hole side on two opposite sides of the burner; the number of the first connection structure is multiple, and two adjacent first connection structures are spaced apart; all the first connection structures comprise a first part and a second part, with the first part arranged corresponding to the first fire hole side, and the second part arranged corresponding to the second fire hole side.

**[0079]** In some embodiments of the present application, the number of the first connection structures of the first part is equal to the number of the first connection structures of the second part, and the first connection structures of the first part and the first connection structures of the second part are arranged in a one-to-one correspondence;
and/or the number of the fire holes on the first fire hole side is the same as the number of the fire holes on the second fire hole side.

**[0080]** In some embodiments of the present application, the multiple fire holes comprise:

main fire holes, where the number of the main fire holes is multiple, and two adjacent main fire holes are spaced apart; and

auxiliary fire holes, where the number of the auxiliary fire holes is multiple, and one auxiliary fire hole is arranged between every two adjacent main fire holes; at the connection position between the first body and the second body, the first connection structure blocks the communication between the auxiliary fire hole and the accommodation cavity, and the blocked auxiliary fire hole is communicated with at least one adjacent main fire hole through the communication channel.

**[0081]** In some embodiments of the present application, the first connection structure is arranged near the accommodation cavity.

**[0082]** In some embodiments of the present application, the first body is provided with a first connection part, the second body is provided with a second connection part, and the first connection part cooperates with the second connection part to form the first connection structure;
one of the first connection part and the second connection part is a protruding structure, the other of the first connection part and the second connection part is a hole structure, and the protruding structure is riveted and matched with the hole structure.

**[0083]** In some embodiments of the present application, the protruding structure is a flanging hole with a flanging, and the flanging is riveted and matched with the hole structure.

**[0084]** In some embodiments of the present application, an avoidance structure is provided radially outside the hole structure, and is arranged around the circumference of the hole structure.

**[0085]** A tenth aspect of the present application provides a cooking appliance, which comprises the burner as described above in the ninth aspect.

**[0086]** According to the cooking appliance of the present application, the first body and the second body of the burner are connected and fixed to each other through the first connection structure; the fire holes and the accommodation cavity are formed between the first body and the second body. The gas in the gas pipeline enters the accommodation cavity and can be sprayed out through the fire holes, and the combustion of the burner is achieved by ignition. The position of the first connection structure is spaced apart from the edge of the burner, and blocks the communication between the fire hole and the accommodation cavity. The communication channel communicates the blocked fire hole with at least one adjacent fire hole, so that gas can enter the blocked fire hole and can be ignited after being sprayed from the blocked fire hole, thereby avoiding the problem of poor fire transmission at the riveting position.

**[0087]** An eleventh aspect of the present application provides a burner, which comprises a first body and a second body that are matched with each other; an accommodation cavity is formed between the first body and the second body, and is used for communication with a gas pipeline; at least one of the first body and the second body is formed with a partition structure, which forms at least one fire hole group communicated with the outside at the connection position between the first body and the second body; each fire hole group comprises a main fire hole and a branch fire hole; one end of the main fire hole is communicated with the accommodation cavity, and the other end of the main fire hole is communicated with the branch fire hole; the branch fire holes are arranged on both axial sides of the main fire hole respectively, and the gas flow directions of the branch fire holes located on both axial sides of the main fire hole are different.

**[0088]** According to the burner of the present application, when the burner is used in a cooking appliance and cooking is performed, gas is introduced into the accommodation cavity communicated with the gas pipeline; the gas flows outward through the main fire holes and the branch fire holes of the fire hole group, and the ignition element of the cooking appliance ignites the gas flowing out of the branch fire holes, causing it to burn and provide heat for cooking. Due to the different gas flow directions of the branch fire holes located on both axial sides of the main fire hole in each fire hole group, the directions of gas flowing out of the branch fire holes of the fire hole groups are not parallel, which increases the possibility of gas contact with each other, facilitates gas mixing, and thus improves the combustion performance and fire transmission performance of the burner.

**[0089]** In addition, the burner according to the present application may also have the following additional technical features.

**[0090]** In some embodiments of the present application, the partition structure comprises:

multiple first partition parts, which are arranged along the connection positions between the first body and the second body, where two adjacent first partition parts are spaced apart from each other; and

multiple second partition parts, which are spaced apart and arranged around the outer side of the

multiple first partition parts, where the area between two adjacent first partition parts is each correspondingly provided with at least one second partition part;

the main fire hole is formed between two adjacent first partition parts, and the branch fire hole is formed between two adjacent second partition parts.

**[0091]** In some embodiments of the present application, the multiple first partition parts and the multiple second partition parts are both formed on the first body.

**[0092]** In some embodiments of the present application, the position on the second body that corresponds to the multiple first partition parts is a first planar structure, and each first partition part is a first profile formed on the first body; the first profile protrudes toward the side close to the first planar structure and is pressed against the first planar structure.

**[0093]** In some embodiments of the present application, the cross section of the first profile is a tapered structure in the protruding direction.

**[0094]** In some embodiments of the present application, the position on the second body that corresponds to the multiple second partition parts is a second planar structure, and each second partition part is a second profile formed on the first body; the second profile protrudes toward the side close to the second planar structure and is pressed against the second planar structure.

**[0095]** In some embodiments of the present application, the cross section of the second profile is a tapered structure in the protruding direction.

**[0096]** In some embodiments of the present application, the number of the fire hole groups is at least two, and at adjacent positions, two adjacent fire hole groups share one branch fire hole.

**[0097]** In some embodiments of the present application, the connection method between the first body and the second body is adhesive bonding, riveting, welding, or fastener connection.

**[0098]** In some embodiments of the present application, the first body is provided with a first riveting structure, the second body is provided with a second riveting structure, and the first riveting structure is riveted and matched with the second riveting structure.

**[0099]** A twelfth aspect of the present application provides a combustion assembly, which comprises:

the burner as described above in the eleventh aspect;

an ignition element, which is installed on the burner; and

a flame detection element, which is installed on the burner.

**[0100]** According to the combustion assembly of the present application, when the combustion assembly is used in a cooking appliance and cooking is performed, gas is introduced into the accommodation cavity communicated with the gas pipeline; the gas flows outward through the main fire holes and the branch fire holes of the fire hole group, and the ignition element of the cooking appliance ignites the gas flowing out of the branch fire holes, causing it to burn and provide heat for cooking. Due to the different gas flow directions of the branch fire holes located on both axial sides of the main fire hole in each fire hole group, the directions of gas flowing out of the branch fire holes of the fire hole groups are not parallel, which increases the possibility of gas contact with each other, facilitates gas mixing, and thus improves the combustion performance and fire transmission performance of the burner.

**[0101]** A thirteenth aspect of the present application provides a cooking appliance, which comprises the combustion assembly as described above in the twelfth aspect.

**[0102]** According to the cooking appliance of the present application, gas is introduced into the accommodation cavity communicated with the gas pipeline; the gas flows outward through the main fire holes and the branch fire holes of the fire hole group, and the ignition element of the cooking appliance ignites the gas flowing out of the branch fire holes, causing it to burn and provide heat for cooking. Due to the different gas flow directions of the branch fire holes located on both axial sides of the main fire hole in each fire hole group, the directions of gas flowing out of the branch fire holes of the fire hole groups are not parallel, which increases the possibility of gas contact with each other, facilitates gas mixing, and thus improves the combustion performance and fire transmission performance of the burner.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0103]** Upon reading detailed description of the preferred embodiments below, various other advantages and benefits will become clear to those skilled in the art. The accompanying drawings are only used for the purpose of illustrating the preferred embodiments, and should not be considered as a limitation to the present application. Moreover, throughout the drawings, the same reference signs are used to denote the same components. In the drawings:

FIG. 1 shows a schematic structural view of the burner according to some embodiments of the present application (the second body has a first embodiment);

FIG. 2 is a schematic enlarged structural view of part A of the burner shown in FIG. 1 (the black thick arrow lines in the figure represent the direction of fire transmission);

FIG. 3 is a schematic structural view of the burner

shown in FIG. 1 from a second perspective;

FIG. 4 is a cross-sectional view of the burner shown in FIG. 3 taken along line B-B;

FIG. 5 is a schematic exploded structural view of the burner shown in FIG. 1;

FIG. 6 is a schematic structural view of the first body of the burner shown in FIG. 5;

FIG. 7 is a schematic enlarged structural view of part C of the first body shown in FIG. 6;

FIG. 8 is a schematic structural view of the second body of the burner shown in FIG. 5;

FIG. 9 is a schematic enlarged structural view of part D of the second body shown in FIG. 8;

FIG. 10 shows a schematic structural view of the burner according to an embodiment of the present application (the second body has a second embodiment);

FIG. 11 is a schematic enlarged structural view of part E of the burner shown in FIG. 10 (the black thick arrow lines in the figure represent the direction of fire transmission);

FIG. 12 is a schematic structural view of the burner shown in FIG. 10 from a second perspective;

FIG. 13 is a cross-sectional view of the burner shown in FIG. 12 taken along line F-F;

FIG. 14 is a schematic structural view of the second body of the burner shown in FIG. 10;

FIG. 15 is a schematic enlarged structural view of part G of the second body shown in FIG. 14;

FIG. 16 shows a schematic structural view of the burner according to some embodiments of the present application;

FIG. 17 is a schematic enlarged structural view of part A of the burner shown in FIG. 16;

FIG. 18 is a schematic structural view of the burner shown in FIG. 16 from another perspective;

FIG. 19 is a schematic enlarged structural view of part B of the burner shown in FIG. 18;

FIG. 20 is a schematic exploded structural view of the burner shown in FIG. 16;

FIG. 21 is a schematic structural view of the second body of the burner shown in FIG. 20;

FIG. 22 is a schematic enlarged structural view of part C of the second body shown in FIG. 21;

FIG. 23 is a schematic structural view of the first body of the burner shown in FIG. 20;

FIG. 24 is a schematic enlarged structural view of part D of the first body shown in FIG. 23;

FIG. 25 is a schematic structural view of the first body shown in FIG. 23 from another perspective;

FIG. 26 is a schematic enlarged structural view of part E of the first body shown in FIG. 25;

FIG. 27 shows a schematic structural view of the burner according to some embodiments of the present application;

FIG. 28 is a schematic enlarged structural view of part A of the burner shown in FIG. 27;

FIG. 29 is a schematic exploded structural view of the burner shown in FIG. 27;

FIG. 30 is a schematic structural view of the first body of the burner shown in FIG. 29;

FIG. 31 is a schematic enlarged structural view of part B of the first body shown in FIG. 30;

FIG. 32 is a schematic structural view of the second body of the burner shown in FIG. 29;

FIG. 33 is a schematic enlarged structural view of part C of the second body shown in FIG. 32;

FIG. 34 is a cross-sectional view of the burner shown in FIG. 27 (the black arrow lines in the figure represent the flow direction of gas);

FIG. 35 is a schematic enlarged structural view of part D of the burner shown in FIG. 34;

FIG. 36 is a schematic structural view of the burner shown in FIG. 27 when applied to a cooking appliance (only a partial structure of the cooking appliance is shown);

FIG. 37 shows a schematic structural view of a combustion assembly according to some embodiments of the present application;

FIG. 38 is a schematic enlarged structural view of part A of the combustion assembly shown in FIG. 37

(the black arrow lines in the figure represent the fire transmission path);

FIG. 39 is a partial cross-sectional view of the combustion assembly shown in FIG. 37;

FIG. 40 is a schematic enlarged structural view of part B of the combustion assembly shown in FIG. 39 (the black arrow lines in the figure represent the fire transmission path);

FIG. 41 is a schematic exploded structural view of the combustion assembly shown in FIG. 37;

FIG. 42 is a schematic structural view of the first body of the combustion assembly shown in FIG. 41;

FIG. 43 is a schematic enlarged structural view of part C of the first body shown in FIG. 42;

FIG. 44 is a schematic structural view of the second body of the combustion assembly shown in FIG. 41;

FIG. 45 is a schematic enlarged structural view of part D of the second body shown in FIG. 44;

FIG. 46 shows a schematic structural view of the burner according to some embodiments of the present application (the second body has a first embodiment);

FIG. 47 is a schematic enlarged structural view of part A of the burner shown in FIG. 46;

FIG. 48 is a schematic enlarged structural view of part A of the burner shown in FIG. 46 (in the figure, the dashed contour lines indicated by reference sign 80 represent the communication channel structure, and the black thick arrow lines represent the flow direction of gas);

FIG. 49 is a schematic structural view of the burner shown in FIG. 46 from a second perspective;

FIG. 50 is a schematic enlarged structural view of part B of the burner shown in FIG. 49;

FIG. 51 is a schematic structural view of the burner shown in FIG. 46 from a third perspective;

FIG. 52 is a cross-sectional view of the burner shown in FIG. 51 taken along line C-C;

FIG. 53 is a schematic exploded structural view of the burner shown in FIG. 46;

FIG. 54 is a schematic structural view of the first body of the burner shown in FIG. 53;

FIG. 55 is a schematic enlarged structural view of part D of the first body shown in FIG. 54;

FIG. 56 is a schematic structural view of the second body of the burner shown in FIG. 53;

FIG. 57 is a schematic enlarged structural view of part E of the second body shown in FIG. 56;

FIG. 58 shows a schematic structural view of the second body of the burner according to an embodiment of the present application (the second body has a second embodiment);

FIG. 59 is a schematic enlarged structural view of part F of the burner shown in FIG. 58;

FIG. 60 shows a schematic structural view of the second body of the burner according to an embodiment of the present application (the second body has a third embodiment);

FIG. 61 is a schematic enlarged structural view of part G of the burner shown in FIG. 60;

FIG. 62 shows a schematic structural view of the second body of the burner according to an embodiment of the present application (the second body has a fourth embodiment);

FIG. 63 is a schematic enlarged structural view of part H of the burner shown in FIG. 62;

FIG. 64 shows a schematic structural view of the combustion assembly according to some embodiments of the present application;

FIG. 65 is a schematic enlarged structural view of part A of the combustion assembly shown in FIG. 64 (the black arrow lines in the figure represent the fire transmission path);

FIG. 66 is a schematic exploded structural view of the combustion assembly shown in FIG. 64;

FIG. 67 is a schematic structural view of the first body of the combustion assembly shown in FIG. 66;

FIG. 68 is a schematic enlarged structural view of part B of the first body shown in FIG. 67;

FIG. 69 is a schematic structural view of the second body of the combustion assembly shown in FIG. 66;

FIG. 70 is a schematic enlarged structural view of part B of the second body shown in FIG. 69;

FIG. 71 is a schematic structural view of the combus-

tion assembly shown in FIG. 64 from a second perspective (the black arrow lines in the figure represent the gas flow path);

FIG. 72 is a schematic enlarged structural view of part D of the combustion assembly shown in FIG. 71 (the black arrow lines in the figure represent the gas flow path);

FIG. 73 is a schematic structural view of the combustion assembly shown in FIG. 64 from a third perspective; and

FIG. 74 is a schematic enlarged structural view of part E of the combustion assembly shown in FIG. 63.

List of reference signs:

**[0104]**

1000: cooking appliance;

1000-1: combustion assembly;

100: burner; 101: gas inlet; 102: air inlet;

10: first body;

11: first cavity; 112: partition structure; 1121: first partition part; 1122: second partition part; 12: fire hole construction cavity; 13: first connection part; 14: third connection part; 15: avoidance structure; 16: first plate; 17: fire transmission profile;

12-1: fire hole profile; 13-1: first riveting profile;

20: second body;

21: second cavity; 22: second connection part; 23: fourth connection part; 24: first blocking structure; 25: second plate; 26: protrusion; 27: second blocking structure;

21-1: fire transmission structure; 21-11: fire transmission section; 21-12: first burning-induction section; 21-13: second burning-induction section; 22-1: first guide structure; 23-1: flame stabilization structure; 24-1: second guide structure; 24-2: channel construction cavity; 25-1: second riveting profile; 26-1: split fire profile;

30: first connection structure;

30-1: fire hole group;

30-11: first fire hole group; 30-12: second fire hole group;

40: fire hole;

41: main fire hole; 42: auxiliary fire hole; 42-1: branch fire hole; 43: first fire hole side; 44: second fire hole side;

50: second connection structure;

60: first fire transmission channel;

61: first channel part; 62: second channel part;

70: second fire transmission channel;

80: accommodation cavity;

90: communication channel;

200: ignition element;

300: receiver;

301: ignition site;

400: cooking chamber;

500: flame detection element;

600: installation bracket.

## DETAILED DESCRIPTION

**[0105]** Hereinafter, exemplary embodiments of the present disclosure will be described in greater detail with reference to the accompanying drawings. Although the exemplary embodiments of the present disclosure are shown in the drawings, it should be understood that the present disclosure may be implemented in various forms and should not be limited by the embodiments set forth herein. On the contrary, these embodiments are provided to enable a more thorough understanding of the present disclosure and to fully convey the scope of the present disclosure to those skilled in the art.

**[0106]** It should be understood that the terms used herein are only for the purpose of describing specific exemplary embodiments, and are not intended to be limitative. Unless clearly indicated otherwise in the context, singular forms "a", "an", and "said" as used herein may also mean that plural forms are included. Terms "comprise", "comprise", "contain" and "have" are inclusive, and therefore indicate the existence of the stated features, steps, operations, elements and/or components, but do not exclude the existence or addition of one or more other features, steps, operations, elements, components, and/or combinations thereof. The method steps, processes, and operations described herein should not be interpreted as requiring them to be executed in the specific order described or illustrated, unless

the order of execution is clearly indicated. It should also be understood that additional or alternative steps may be used.

**[0107]** Although terms "first", "second", "third" and the like may be used herein to describe multiple elements, components, regions, layers and/or sections, these elements, components, regions, layers and/or sections should not be limited by these terms. These terms may be only used to distinguish one element, component, region, layer or section from another region, layer or section. Unless clearly indicated in the context, terms such as "first", "second" and other numerical terms do not imply an order or sequence when they are used herein. Therefore, the first element, component, region, layer or section discussed below may be referred to as a second element, component, region, layer or section without departing from the teachings of the exemplary embodiments.

**[0108]** For ease of description, spatial relative terms may be used herein to describe the relationship of one element or feature relative to another element or feature as shown in the drawings. These relative terms are, for example, "inner", "outer", "inside", "outside", "below", "under", "above", "over", etc. These spatial relative terms are intended to comprise different orientations of the device in use or in operation in addition to the orientation depicted in the drawings. For example, if the device in the figure is turned over, then elements described as "below other elements or features" or "under other elements or features" will be oriented "above the other elements or features" or "over the other elements or features". Thus, the exemplary term "below" may comprise orientations of both above and below. The device can be otherwise oriented (rotated by 90 degrees or in other directions), and the spatial relationship descriptors used herein will be explained accordingly.

**[0109]** As shown in FIGS. 1 to 15, according to some embodiments of the present application, a burner 100 is provided, which comprises two bodies, i.e., a first body 10 and a second body 20. The first body 10 is connected and fixed at the top of the second body 20.

**[0110]** The first body 10 and the second body 20 are connected to each other through a first connection structure 30. The first body 10 and the second body 20 enclose to form an accommodation cavity 80 and fire holes 40 between them. A gas pipeline can be communicated with the accommodation cavity 80, and the number of fire holes 40 is multiple. All the fire holes 40 are arranged in a spaced-apart manner in a preset direction on the burner 100, and each of the fire holes 40 is communicated with the accommodation cavity 80 respectively. The gas in the accommodation cavity 80 can be sprayed out through the fire holes 40.

**[0111]** Further, the number of the first connection structure 30 is at least one, and the position of the first connection structure 30 is spaced apart from the edge of the burner 100. At the position where the first connection structure 30 is located, the fire hole 40 is blocked by the first connection structure 30, that is, the fire hole 40 cannot be communicated with the accommodation cavity 80.

**[0112]** Further, as shown in FIGS. 1 and 2, a first fire transmission channel 60 is provided on the second body 20, and the first fire transmission channel 60 is located on an outer side of all the fire holes 40. Fire can be transmitted between two adjacent fire holes 40 through the first fire transmission channel 60.

**[0113]** Specifically, the first body 10 and the second body 20 are connected and fixed to each other through the first connection structure 30; the fire holes 40 and the accommodation cavity 80 are formed between the first body 10 and the second body 20. The gas in the gas pipeline enters the accommodation cavity 80 and can be sprayed out through the fire holes 40, and the combustion of the burner 100 is achieved by ignition. During the combustion process of the burner 100, there is a flame in the first fire transmission channel 60, and the flame in the first fire transmission channel 60 can transmit fire to two adjacent fire holes 40. The position of the first connection structure 30 is set to block the communication between the fire hole 40 and the accommodation cavity 80. The flame in the first fire transmission channel 60 can supplement the position of the blocked fire hole 40, thereby inducing the fire holes 40 on two adjacent sides of the blocked fire hole 40 to burn, thereby achieving fire transmission and avoiding the problem of poor fire transmission at the riveting position.

**[0114]** It should be understood that as shown in FIG. 2, when the burner 100 is in use, the gas in the accommodation cavity 80 is sprayed out through the fire holes 40, and the sprayed gas is ignited at the position of a certain fire hole 40. The ignited gas burns to form a flame. An extension direction of the first fire transmission channel 60 is perpendicular to the direction of spraying gas through the fire holes 40. When the flame passes through the first fire transmission channel 60, some of the flame will be intercepted by the first fire transmission channel 60. The intercepted flame flows toward two opposite sides of the first fire transmission channel 60, and the flowing flame ignites the gas sprayed from adjacent fire holes 40, thereby achieving the fire transmission operation between adjacent fire holes 40 and ensuring that the burner 100 can burn fully.

**[0115]** In addition, when the burner 100 is burning, the gas is sprayed from the fire hole 40 and ignited to form a flame. The temperature at the position of the fire hole 40 is relatively high, and under the high temperature condition, the burner 100 is prone to deformation at the position of the fire hole 40 when it is used for a long time. The first connection structure 30 is used to connect and fix the first body 10 and the second body 20. By setting the first connection structure 30 to be spaced apart from the edge of the burner 100 and block the communication between the fire hole 40 and the accommodation cavity 80, the position where the first connection structure 30 is located can be set close to the position of the fire hole 40, and the

strength at the position of the fire hole 40 can be enhanced by the first connection structure 30 to reduce the deformation of the fire hole 40 caused by high temperature, thereby reducing the difficulty of fire transmission, and the problems of backfire or flame lifting in the burner 100.

**[0116]** In addition, multiple fire holes 40 are arranged in a spaced-apart manner on the burner 100, and at least one side of the blocked fire hole 40 is provided with an unblocked fire hole 40. The first fire transmission channel 60 communicates the blocked fire hole 40 with the unblocked fire hole 40. When the unblocked fire hole 40 is ignited, the flame formed by the combustion of gas can pass through the position of the blocked fire hole 40, thereby transmitting fire for the next unblocked fire hole 40 to avoid problems such as gas interruption at the position of the blocked fire hole 40 (which would otherwise cause poor fire transmission), thereby ensuring the stable and efficient operation of the burner 100.

**[0117]** It should be pointed out that as shown in FIGS. 1 and 3, the burner 100 is provided with an air inlet 102 and a gas inlet 101 that are communicated with the accommodation cavity 80. The gas inlet 101 is used for communication with the gas pipeline, and the air inlet 102 is used for the entry of air. The gas in the gas pipeline and the air enter the accommodation cavity 80 through the gas inlet 101 and the air inlet 102 respectively according to a preset ratio, so that the gas entering the accommodation cavity 80 forms a mixed gas to meet the needs of gas combustion.

**[0118]** The shape of the burner 100 can be a square structure or a strip-shaped structure. In the embodiment of the present application, the burner 100 is a strip-shaped structure.

**[0119]** Further, as shown in FIGS. 4 to 9 or FIGS. 10 to 15, the first body 10 has a first plate 16 and a first cavity 11. The first plate 16 is arranged on the outer side of an opening of the first cavity 11 and is arranged in a circumferential direction. The second body 20 has a second plate 25 and a second cavity 21. The second plate 25 is arranged on the outer side of an opening of the second cavity 21 and is arranged in a circumferential direction. A fire hole construction cavity 12 is provided on one of the second body 20 and the first body 10, and a channel construction cavity is provided on the other of the second body 20 and the first body 10.

**[0120]** After the first body 10 and the second body 20 are connected and fixed by at least one connection structure, the first cavity 11 and the second cavity 21 are interlocked to form the structure of the accommodation cavity 80, and the fire hole construction cavity 12 abuts against the corresponding plate and they enclose to form multiple fire holes 40.

**[0121]** In the embodiment of the present application, as shown in FIGS. 6 and 7, the first body 10 has the fire hole construction cavity 12, the first plate 16, and the first cavity 11. The fire hole construction cavity 12, the first plate 16 and the first cavity 11 are subjected to integrated processing, which can reduce processing steps, improve processing convenience, and reduce the manufacturing cost. The second body 20 has the channel construction cavity, the second plate 25, and the second cavity 21. The channel construction cavity, the second plate 25 and the second cavity 21 are subjected to integrated processing, which can also reduce processing steps, improve processing convenience, and reduce the manufacturing cost.

**[0122]** It should be understood that a side of the first cavity 11 that faces the second body 20 has an opening, and the first plate 16 is located on the outer side of the opening of the first cavity 11 and is arranged in a circumferential direction of the opening of the first cavity 11. The first plate 16 can be regarded as a flanging formed at the position of the opening of the first cavity 11, and the size of the flanging can meet the need of setting the fire hole construction cavity 12. At the same time, the fire hole construction cavity 12 is formed on the first plate 16, and the fire hole construction cavity 12 is a corrugated structure. The first body 10 and the second body 20 are arranged up and down, and the first body 10 is fixed at the top of the second body 20 through the first connection structure 30. Valley positions of the fire hole construction cavity 12 with the corrugated structure are pressed against the top of the second plate 25, and multiple fire holes 40 are formed between the fire hole construction cavity 12 with the corrugated structure and the second plate 25.

**[0123]** At the same time, a side of the second cavity 21 that faces the first body 10 has an opening, and the second plate 25 is located on the outer side of the opening of the second cavity 21 and is arranged in a circumferential direction of the opening of the second cavity 21. The second plate 25 can be regarded as a flanging formed at the position of the opening of the second cavity 21, and the size of the flanging can meet the need of setting the first fire transmission channel 60. At the same time, the first fire transmission channel 60 is formed on the second plate 25. The first body 10 and the second body 20 are arranged up and down. The first body 10 is fixed at the top of the second body 20 through the first connection structure 30, and the opening of the first cavity 11 and the opening of the second cavity 21 are interlocked to form the accommodation cavity 80. Valley positions of the fire hole construction cavity 12 with the corrugated structure are pressed against the top of the second plate 25, and multiple fire holes 40 are formed between the fire hole construction cavity 12 with the corrugated structure and the second plate 25.

**[0124]** It should be pointed out that the first body 10 can be a sheet metal stamped part or a casting part; similarly, the second body 20 can be a sheet metal stamped part or a casting part.

**[0125]** In the embodiment of the present application, the first body 10 is a first sheet metal part, and the second body 20 is a second sheet metal part. The first sheet metal part is a plate-shaped structure, and it is formed

with the first cavity 11, the first plate 16, and the fire hole construction cavity 12 (a fire hole 40 profile) by stamping. The fire hole construction cavity 12 is located on the outer side of the first cavity 11 and is communicated with the first cavity 11. The second sheet metal part is also a plate-shaped structure, and it is formed with the second cavity 21 and the second plate 25 by stamping. When the first body 10 is connected and fixed to the second body 20, the first body 10 abuts against the second body 20, and the first cavity 11 and the second cavity 21 are interlocked to form the accommodation cavity 80. The part of the second body 20 that is located on the outer side of the second cavity 21 is the second plate 25; the second plate 25 abuts against the fire hole construction cavity 12 and they enclose to form the fire holes 40. The structure of the burner 100 is simple and easy to process and manufacture, effectively reducing the manufacturing cost.

**[0126]** The first cavity 11 is formed by arching the first body 10 toward the side away from the second body 20, and the second cavity 21 is formed by arching the second body 20 toward the side away from the first body 10. After the two cavities are interlocked, they can form the accommodation cavity 80 that is an approximately cylindrical structure. The gas inlet 101 and the air inlet 102 are located at one end of the cylindrical structure, and the first cavity 11 and the second cavity 21 enclose to form the gas inlet 101. There are two air inlets 102, one is provided on the first body 10 and the other is provided on the second body 20, with the two air inlets 102 facing each other. Setting the air inlets 102 and the gas inlet 101 at one end of the accommodation cavity 80 with the cylindrical structure can increase the flow path of gas and air in the accommodation cavity 80, so that gas and air can be fully mixed, thereby improving the combustion efficiency of gas. At the same time, two air inlets 102 are provided, which can increase the amount of air entry, further ensuring that the gas can be fully combusted and improving the combustion efficiency of the gas.

**[0127]** In addition, as shown in FIGS. 1, 3, 7 and 8, the first cavity 11 comprises a first expansion section, a first contraction section, and a second expansion section, while the second cavity 21 comprises a third expansion section, a second contraction section, and a fourth expansion section. When the first body 10 and the second body 20 are matched with each other, the first expansion section and the third expansion section are interlocked to form a first expansion channel, the first contraction section and the second contraction section are interlocked to form a contraction channel, and the second expansion section and the fourth expansion section are interlocked to form a second expansion channel. The first expansion channel and the second expansion channel are communicated with two opposite sides of the contraction channel to form the structure of the accommodation cavity 80. The first expansion channel is communicated with the gas inlet 101 and the air inlets 102 respectively, and the second expansion channel is communicated with the fire holes 40 respectively. The first expansion channel, the contraction channel, and the second expansion channel form a structure of a Venturi tube, which uses the contraction channel to compress the mixture of gas and air, thereby increasing the flow velocity of gas and air and effectively compensating for the kinetic energy loss during the flow process.

**[0128]** It should be pointed out that the fire hole construction cavity 12 may also be implemented in various ways. For example, the fire hole construction cavity 12 is formed on the second plate 25; for example, the fire hole construction cavity 12 is formed on the first plate 16; for example, a part of the fire hole construction cavity 12 is formed on the first plate 16, and another part of the fire hole construction cavity 12 is formed on the second plate 25.

**[0129]** Further, as shown in FIGS. 2, 8 and 9, a first blocking structure 24 is provided on the second plate 25 of the second body 20. The first blocking structure 24 is located on the outer side of the multiple fire holes 40, and its extension direction is consistent with the spaced-apart direction of the multiple fire holes 40. The first blocking structure 24 is spaced-apart from the multiple fire holes 40, and the spaced-apart space is the first fire transmission channel 60.

**[0130]** Specifically, the first blocking structure 24 is arranged on the outer side of the multiple fire holes 40, and the structure of forming the first fire transmission channel 60 using the space spaced apart between the first blocking structure 24 and the multiple fire holes 40 is relatively simple and easy to process and manufacture, and can effectively reduce the manufacturing cost of the burner 100.

**[0131]** It should be understood that the first blocking structure 24 is set at equal intervals from the trajectory formed by the multiple fire holes 40 to ensure that the first fire transmission channel 60 formed by the first blocking structure 24 has stable fire transmission performance, thereby ensuring the effectiveness of fire transmission.

**[0132]** In addition, in order to ensure effective fire transmission between the fire holes 40, the outer sides of the fire holes 40 are all provided with the first blocking structure 24 to form the first fire transmission channel 60 on the outer sides of the fire holes 40, thereby ensuring the fire transmission between adjacent fire holes 40 and ensuring that the burner 100 can burn fully and effectively.

**[0133]** Further, as shown in FIG. 4, a spacing distance between the fire hole 40 and the first blocking structure 24 is L, where $0.5mm \leq L \leq 8mm$.

**[0134]** Specifically, by setting the spacing distance between the fire hole 40 and the first blocking structure 24, the width of the first fire transmission channel 60 is effectively set, ensuring sufficient flame flow in the first fire transmission channel 60 and thus ensuring the effectiveness of fire transmission in the first fire transmission channel 60, enabling the burner 100 to operate stably and efficiently.

**[0135]** It should be understood that when the spacing distance between the fire hole 40 and the first blocking

structure 24 is smaller than 0.5mm, the width of the first fire transmission channel 60 formed at this time is small, and there is less flame flowing in the first fire transmission channel 60. At this time, the fire transmission effect is poor. When the spacing distance between the fire hole 40 and the first blocking structure 24 is larger than 8mm, the width of the first fire transmission channel 60 formed at this time is large, which will result in a larger overall volume of the burner 100. When the burner 100 is used in a cooking appliance, a larger installation space is required, which is not advantageous for improving the space utilization of the cooking appliance.

**[0136]** It should be pointed out that in the embodiments of the present application, the value of the spacing distance L between the fire hole 40 and the first blocking structure 24 can be 0.5mm, 1mm, 1.5mm, 2mm, 2.5mm, 3mm, 3.5mm, 4mm, 4.5mm, 5mm, 5.5mm, 6mm, 6.5mm, 7mm, 7.5mm, ..., 8mm.

**[0137]** Further, as shown in FIG. 4, the first body 10 is arranged at the top of the second body 20, and the thickness direction of the second body 20 is the arrangement direction of the first body 10 and the second body 20. In the thickness direction of the second body 20, the size of the first blocking structure 24 is defined as M, and the size of the fire hole 40 is defined as N, where $2N \geq M > 0$.

**[0138]** Specifically, in the arrangement direction of the first body 10 and the second body 20, the bottom of the first blocking structure 24 is flush with the bottom of the fire hole 40, and the top of the first blocking structure 24 extends toward the first body 10. The extension size of the first blocking structure 24 is within a range of (0, 2N]. By providing the first blocking structure 24, it can divert the flame formed by the gas sprayed from the fire holes 40, with a part of the flame entering the first fire transmission channel 60 and used for fire transmission between the fire holes 40, and the other part of the flame providing heat for the cooking process.

**[0139]** It should be understood that in the arrangement direction of the first body 10 and the second body 20, if the extension size of the first blocking structure 24 is larger than 2N, the size of the first blocking structure 24 formed at this time is larger, which will cause the vast majority of the flame to be blocked within the first fire transmission channel 60, resulting in a smaller amount of flame used for heating the outside, which is not advantageous for improving the performance of the burner 100.

**[0140]** It should be pointed out that in the embodiment of the present application, the value of M can be 0.1N, 0.3N, 0.5N, 0.7N, 0.9N, 1.1N, 1.3N, 1.5N, 1.7N, 1.9N, ..., 2N.

**[0141]** In some embodiments of the present application, as shown in FIGS. 5 to 9, the first body 10 is arranged at the top of the second body 20, and the two are connected and fixed by the first connection structure 30. The fire holes 40 and the accommodation cavity 80 are formed between the first body 10 and the second body 20. The first blocking structure 24 is formed on the second body 20, and the first blocking structure 24 is a first protruding structure that protrudes toward the first body 10.

**[0142]** Specifically, by setting the first blocking structure 24 as a first protruding structure, the connection strength between the first blocking structure 24 and the second body 20 is increased, thus reducing the deformation of the first blocking structure 24 caused by high temperature during the combustion process of the burner 100, and further ensuring the fire transmission effect of the first fire transmission channel 60.

**[0143]** It should be understood that the use of the first protruding structure also improves the overall structural strength of the second body 20, reducing the problem of deformation of the second body 20 during the combustion process of the burner 100.

**[0144]** It should be pointed out that the first protruding structure is formed on the second body 20 and forms an integrated structure with the second body 20. In the embodiment of the present application, it is a protrusion formed on the second body 20 by stamping to ensure the structural stability between the first protruding structure and the second body 20.

**[0145]** In some embodiments of the present application, as shown in FIGS. 10 to 15, the first body 10 is arranged at the top of the second body 20, and the two are connected and fixed by the first connection structure 30. The fire holes 40 and the accommodation cavity 80 are formed between the first body 10 and the second body 20. The first blocking structure 24 is formed on the second body 20, and the first blocking structure 24 is a first flanging structure formed at the edge of the second body 20.

**[0146]** Specifically, by setting the first blocking structure 24 as a first flanging structure, the connection strength between the first blocking structure 24 and the second body 20 is increased, and the deformation of the first blocking structure 24 caused by high temperature during the combustion process of the burner 100 is reduced, further ensuring the fire transmission effect of the first fire transmission channel 60.

**[0147]** It should be pointed out that the first flanging structure is formed on the second body 20 by stamping, which improves the convenience of processing and reduces the manufacturing cost.

**[0148]** In some embodiments of the present application, as shown in FIG. 2, the number of the fire holes 40 on the burner 100 is multiple, and the multiple fire holes 40 are distributed on both sides on the burner 100, comprising a first fire hole side 43 and a second fire hole side 44, which are arranged on two opposite sides of the burner 100.

**[0149]** Specifically, in the embodiment of the present application, the burner 100 has an approximately cylindrical structure, and the first fire hole side 43 and the second fire hole side 44 are located on two axial sides of the cylindrical structure respectively. The first fire hole side 43 and the second fire hole side 44 are both arranged in the extension direction of the cylindrical structure.

Through the arrangement of the fire holes 40 of the burner 100, the combustion positions of the burner 100 can be increased, and the combustion capacity of the burner 100 can be enhanced. When the burner 100 is used in a cooking appliance, it can improve the cooking appliance's ability to process food.

**[0150]** In the embodiment of the present application, the burner 100 has multiple first connection structures 30, and any two adjacent first connection structures 30 are spaced apart from each other. The multiple first connection structures 30 comprise two parts, i.e., a first part and a second part. The first part is located on the first fire hole side 43 and corresponds to the first fire hole side 43, and the second part is located on the second fire hole side 44 and corresponds to the second fire hole side 44. By dividing the multiple first connection structures 30 into two parts, with each part corresponding to one fire hole 40 side, the connection strength at the positions of the fire holes 40 is further ensured to reduce the deformation of the fire holes 40 due to high temperature during the use of the burner 100, thereby avoiding adverse effects on the burner 100 caused by deformation of the fire holes 40 (such as difficulty in fire transmission, backfire, or flame lifting).

**[0151]** It should be understood that all the first connection structures 30 in the first part are spaced apart (in the embodiment of the present application, they are spaced apart at equal intervals), and at the same time, the first connection structures 30 in the second part are also spaced apart (in the embodiment of the present application, they are spaced apart at equal intervals). By arranging the multiple first connection structures 30 such that they are dispersed on the burner 100, the connection positions between the first body 10 and the second body 20 are increased, further enhancing the connection strength between the first body 10 and the second body 20, and reducing the problem of deformation caused by stress concentration.

**[0152]** Further, the number of the first connection structures 30 is multiple, and the first connection structures 30 are allocated into equal numbers of first and second parts. The first part is arranged corresponding to the first fire hole side 43 of the fire holes 40, and the second part is arranged corresponding to the second fire hole side 44 of the fire holes 40. The first connection structures 30 located in the first part and the first connection structures 30 located in the second part are arranged in a one-to-one correspondence.

**[0153]** Specifically, in the embodiment of the present application, as shown in FIGS. 1 to 3, the burner 100 has an approximately cylindrical structure. The first fire hole side 43 and the second fire hole side 44 of the fire holes 40 both extend in the axial direction of the cylindrical structure, and are symmetrically arranged with respect to the axial direction of the cylindrical structure. The first part of the multiple first connection structures 30 are arranged corresponding to the first fire hole side 43, and the second part of the multiple first connection structures 30 are arranged corresponding to the second fire hole side 44. By setting the number of first connection structures 30 in the first part to be consistent with the number of first connection structures 30 in the second part and arranging them in a one-to-one correspondence, the strengths of the connection structures on two opposite sides of the burner 100 can be made the same, further ensuring the strength and stability of the overall structure of the burner 100.

**[0154]** Further, the multiple fire holes 40 are configured into two fire hole 40 sides, i.e., the first fire hole side 43 and the second fire hole side 44. Both the first fire hole side 43 and the second fire hole side 44 are arranged in the axial direction of the burner 100 with the approximately cylindrical structure. The first fire hole side 43 and the second fire hole side 44 are axisymmetric with respect to the cylindrical structure; the first part of the multiple first connection structures 30 are arranged corresponding to the first fire hole side 43, while the second part of the multiple first connection structures 30 are arranged corresponding to the second fire hole side 44.

**[0155]** The number of fire holes 40 comprised in the first fire hole side 43 is the same as the number of fire holes 40 comprised in the second fire hole side 44, and they are arranged in a one-to-one correspondence, so that the amounts of flame generated on two opposite sides of the burner 100 are the same, enabling the burner 100 to evenly release heat to the outside. When the burner 100 is used in a cooking appliance, it ensures the cooking effect of the burner 100 on food.

**[0156]** Further, as shown in FIG. 2, the multiple fire holes 40 of the burner 100 comprise multiple main fire holes 41 and multiple auxiliary fire holes 42. The multiple main fire holes 41 are spaced apart on the burner 100, and one auxiliary fire hole 42 is provided between two adjacent main fire holes 41. At the position where the first connection structure 30 is located, the auxiliary fire hole 42 is blocked by the first connection structure 30.

**[0157]** Specifically, during the use of the burner 100, the gas in the accommodation cavity 80 is sprayed out through the main fire holes 41 and the auxiliary fire holes 42 respectively, and the sprayed gas is ignited to produce flames, thereby providing heat for the cooking process. The flow cross section of the main fire hole 41 is larger than that of the auxiliary fire hole 42, and the auxiliary fire hole 42 is arranged between two adjacent main fire holes 41 (the distances between the auxiliary fire hole 42 and two adjacent main fire holes 41 can be equal or unequal; in this embodiment, the distances between the auxiliary fire hole 42 and two adjacent main fire holes 41 are equal to ensure better fire transmission effect between two adjacent main fire holes 41). The auxiliary fire hole 42 can perform fire transmission operation on two adjacent main fire holes 41 to ensure that the burner 100 can burn fully.

**[0158]** The position where the first connection structure 30 is located blocks the auxiliary fire hole 42, so that the first connection structure 30 is located near the fire

hole 40 to improve the connection strength at the position of the fire hole 40, further reducing the deformation of the fire hole 40 caused by high combustion temperature, and enabling the stable and safe operation of the burner 100.

**[0159]** It should be understood that at the position where the first connection structure 30 is located, if the main fire hole 41 is blocked by the first connection structure, it can easily cause flameout of the burner 100 at this time. Therefore, at the position where the first connection structure 30 is located, the first connection structure 30 is arranged to block the auxiliary fire hole 42, thereby reducing the influence of the first connection structure 30 on the combustion process and ensuring the stable and efficient operation of the burner 100.

**[0160]** Further, before the auxiliary fire hole 42 is blocked, it has a communication position with the accommodation cavity 80, and the position where the first connection structure 30 is located is at this communication position. Specifically, the position where the first connection structure 30 is located is the root of the auxiliary fire hole 42 (the communication position between the auxiliary fire hole 42 and the accommodation cavity 80). By setting the first connection structure 30 at the root of the auxiliary fire hole 42 and using the first connection structure 30 to connect and fix the first body 10 and the second body 20, the positional relationship between the first connection structure 30, the fire holes 40, and the accommodation cavity 80 can be also taken into consideration, so that the position where the first connection structure 30 is located not only enhances the strength at the position of the fire hole 40, but also increases the strength at the position of the accommodation cavity 80, thereby improving the overall structural strength of the burner 100 and ensuring its stable and safe use.

**[0161]** It should be understood that setting the first connection structure 30 at the root of the auxiliary fire hole 42 (the communication position between the auxiliary fire hole 42 and the accommodation cavity 80) can reduce the adverse effect of the first connection structure 30 on the accommodation cavity 80 and ensure the smooth flow of gas inside the accommodation cavity 80.

**[0162]** In some examples of this embodiment, as shown in FIGS. 5 to 9, the first connection structure 30 comprises a first connection part 13 and a second connection part 22. The first connection part 13 is arranged on the first body 10, and the second connection part 22 is arranged on the second body 20. One of the second connection part 22 and the first connection part 13 is a protruding structure, and the other of the second connection part 22 and the first connection part 13 is a hole structure. After the protruding structure passes through the hole structure, they are riveted and fitted, thereby connecting and fixing the first body 10 and the second body 20.

**[0163]** Specifically, in this example, the second connection part 22 is the protruding structure, and the first connection part 13 is the hole structure. When the first body 10 is connected and fixed to the second body 20, the first body 10 abuts against the second body 20, the protruding structure passes through the hole structure, and the part of the protruding structure that passes out of the hole structure is riveted using riveting. The riveting fixation has a simple structure which is easy to process. In addition, the riveting structure has high strength and good stability, which can further increase the strength of the fire hole 40 and further reduce the deformation of the fire hole 40 caused by high temperature.

**[0164]** It should be pointed out that the protruding structure is formed on the second body 20. The protruding structure can form an integrated structure with the second body 20, or it is a separate structure from the second body 20 (they are connected and fixed by welding or bonding).

**[0165]** Further, as shown in FIGS. 8 and 9, in this example, the protruding structure is formed on the second plate 25, and the protruding structure is a flanging hole with a flanging in the thickness direction of the second body 20.

**[0166]** When the first plate 16 is connected and fixed to the second plate 25, the first plate 16 is pressed against the top of the second plate 25. The flanging of the flanging hole passes through the hole structure on the first body 10, and the part of the flanging that passes out of the hole structure can be flattened using a riveting device. The structure of the flanging hole is simple and can be processed and manufactured by stamping, that is, the structure of the second body 20 itself is utilized to form a corresponding connection structure, thereby saving connecting components and reducing the manufacturing cost of the product.

**[0167]** It should be pointed out that the height of the flanging is larger than the depth of the hole structure to ensure that the flanging can pass out of the flanging hole to effectively achieve riveting fixation.

**[0168]** In addition, in this example, the hole structure of the first connection part 13 is a circular hole, and the flanging hole is also a circular hole, which is flangingd into a cylindrical structure. The outer diameter of the cylindrical structure is smaller than the diameter of the hole structure to ensure that the flanging can smoothly pass through the hole structure, so that the installation process of the first body 10 and the second body 20 can be smoothly implemented.

**[0169]** Further, as shown in FIGS. 2, 7 and 9, the first connection part 13 is formed on the first body 10 and configured as a hole structure, and the second connection part 22 is formed on the second body 20 and configured as a flanging hole structure. An avoidance structure 15 is also provided on the first body 10. The avoidance structure 15 is located radially outside the hole structure and is arranged around the circumference of the hole.

**[0170]** When the first body 10 is connected and fixed to the second body 20, the first body 10 is pressed against the top of the second body 20, and the flanging of the flanging hole passes through the hole structure on the

first body 10. The part of the flanging that passes out of the hole structure is flattened using a riveting device, so that it is pressed against the avoidance structure 15, thereby forming the first connection structure 30 (the structure formed by riveting the hole structure and the flanging of the flanging hole), thus connecting and fixing the first body 10 and the second body 20.

**[0171]** It should be understood that in the present application, the fire hole construction cavity 12, which is the fire hole 40 profile, is formed on the first body 10; the first connection part 13, which is the hole structure, is also formed on the first body 10. The hole structure is located at the position of the fire hole 40 profile (the fire hole 40 profile for forming the auxiliary fire hole 42). By providing the avoidance structure 15 and arranging it around the circumference of the hole structure, there is sufficient space for riveting around the hole structure to ensure that the riveting device can effectively perform the riveting operation, thereby connecting and fixing the first body 10 and the second body 20.

**[0172]** It should be pointed out that in the present application, the first connection structure 30 is located at the root of the auxiliary fire hole 42 (the communication position between the auxiliary fire hole 42 and the accommodation cavity 80). A part of the structure of the avoidance structure 15 occupies the fire hole 40 profile, and another part of the structure occupies the first cavity 11 used to form the accommodation cavity 80, so as to ensure sufficient riveting space.

**[0173]** Further, as shown in FIGS. 1 and 2, the burner 100 also comprises a second connection structure 50. The number of the second connection structure 50 is at least one, and the second connection structure 50 is used to connect and fix the first body 10 and the second body 20.

**[0174]** By setting the second connection structure 50, the fixation positions between the first body 10 and the second body 20 are increased, further improving the overall strength and stability of the burner 100.

**[0175]** It should be pointed out that as shown in FIGS. 5, 7 and 9, a third connection part 14 is provided on the first body 10, and a fourth connection part 23 is provided on the second body 20. The third connection part 14 cooperates with the fourth connection part 23 to form the second connection structure 50. The structure of the third connection part 14 is the same as that of the first connection part 13, and the structure of the fourth connection part 23 is the same as that of the second connection part 22. For details, reference may be made to the embodiments of the first connection part 13 and the second connection part 22. The specific embodiments of the third connection part 14 and the fourth connection part 23 will not be described repeatedly in the present application.

**[0176]** Further, as shown in FIGS. 2 and 4, the first fire transmission channel 60 comprises two channel parts, i.e., a first channel part 61 and a second channel part 62. The first channel part 61 is located on the outer side of the first fire hole side 43, and the second channel part 62 is located on the outer side of the second fire hole side 44.

**[0177]** Specifically, the first channel part 61 is used to achieve fire transmission between the various fire holes 40 on the first fire hole side 43, and the second channel part 62 is used to achieve fire transmission between the various fire holes 40 on the second fire hole side 44, thereby ensuring that all the fire holes 40 of the burner 100 can fully burn, so that the combustion performance of the burner 100 is ensured.

**[0178]** Further, as shown in FIG. 2, a second fire transmission channel 70 is also provided on the second body 20. The second fire transmission channel 70 is communicated with the accommodation cavity 80 through a (at least one) fire transmission hole formed between the first body 10 and the second body 20. The second fire transmission channel 70 is located on the outer side of the fire transmission hole, and the second channel part 62 and the first channel part 61 of the first fire transmission channel 60 are respectively communicated with two ends of the second fire transmission channel 70.

**[0179]** Specifically, a protrusion 26 is provided on one of the first body 10 and the second body 20, and the other of the first body 10 and the second body 20 has a planar structure. The protrusion 26 can be a protruding block or a protruding rib. When the protruding block or protruding rib abuts against the planar structure, they enclose to form the fire transmission hole communicated with the accommodation cavity 80. The second fire transmission channel 70 is arranged on the outer side of the fire transmission hole and communicated with the accommodation cavity 80 through the fire transmission hole. The second fire transmission channel 70 is communicated with the first channel part 61 and the second channel part 62 of the first fire transmission channel 60 respectively. The gas in the accommodation cavity 80 can be sprayed out through the fire transmission hole and ignited to form a flame. The flame flows in the second fire transmission channel 70 to connect the first channel part 61 with the second channel part 62 for fire transmission, ensuring that the first fire hole side 43 and the second fire hole side 44 can be connected for fire transmission, which further ensures that the burner 100 can burn effectively to reduce the occurrence of flameout of the burner 100.

**[0180]** It should be understood that as shown in FIGS. 5 to 9, in the embodiment of the present application, the burner 100 has an approximately cylindrical structure; the first fire hole side 43 and the second fire hole side 44 are located on two axial sides of the cylindrical structure respectively; the first fire hole side 43 and the second fire hole side 44 are both arranged in the extension direction of the cylindrical structure; the first channel part 61 is correspondingly arranged on the outer side of the first fire hole side 43, and the second channel part 62 is correspondingly arranged on the outer side of the second fire hole side 44; the second fire transmission channel 70 is arranged in the radial direction of the cylindrical structure

to communicate the first channel part 61 with the second channel part 62. At the same time, the second fire transmission channel 70 is located on the outer side of the fire transmission hole.

**[0181]** In addition, the first body 10 is arranged at the top of the second body 20, and both the first fire transmission channels 60 and the second fire transmission channel 70 are arranged on the second body 20. This allows users to intuitively observe the entire fire transmission process during use, so that they can know about the fire transmission condition of the burner 100 in real time, thereby improving the understanding of the working status of the burner 100 during use and improving the user experience during use.

**[0182]** It should be pointed out that in the embodiment of the present application, a fire transmission profile 17 is arranged on the first body 10, and it is the protrusion 26 formed on the first body 10 by stamping. A position on the second body 20 that corresponds to the fire transmission profile 17 is a flat plate structure. When the protrusion 26 abuts against the flat plate structure, they enclose to form the corresponding fire transmission hole. The number of the fire transmission profile 17 can be two, three, four, five, etc.

**[0183]** Further, as shown in FIGS. 2 and 9, a second blocking structure 27 is provided on the second plate 25 of the second body 20. The second blocking structure 27 is located on the outer side of the fire transmission hole, and extends between the first channel part 61 and the second channel part 62. The second blocking structure 27 is spaced apart from the fire transmission hole, and the spaced-apart space between them is the second fire transmission channel 70.

**[0184]** Specifically, the second blocking structure 27 is located on the outer side of the fire transmission hole, and the structure of forming the second fire transmission channel 70 using the space spaced apart between the second blocking structure 27 and the fire transmission hole is relatively simple and easy to process and manufacture, and can effectively reduce the manufacturing cost of the burner 100.

**[0185]** It should be understood that when there are multiple fire transmission holes, the second blocking structure 27 is set at equal intervals from the trajectories formed by the multiple fire transmission holes to ensure that the second fire transmission channel 70 formed by the second blocking structure 27 has stable fire transmission performance, thereby ensuring the effectiveness of fire transmission.

**[0186]** It should be pointed out that the fire transmission profile 17 is provided on the first body 10, and it is arranged at the top of the second fire transmission channel 70. By providing the fire transmission profile 17, the second fire transmission channel 70 forms a semi-closed structure, so that the flame can effectively flow along the second fire transmission channel 70, further ensuring the effect of fire transmission.

**[0187]** In some embodiments of the present application, as shown in FIGS. 2 and 9, the first body 10 is arranged at the top of the second body 20, and the two are connected and fixed by the first connection structure 30. The fire holes 40 and the accommodation cavity 80 are formed between the first body 10 and the second body 20. The second blocking structure 27 is formed on the second body 20, and it is a second protruding structure that protrudes toward the first body 10.

**[0188]** Specifically, by setting the second blocking structure 27 as a second protruding structure, the connection strength between the second blocking structure 27 and the second body 20 is increased, reducing the deformation of the second blocking structure 27 caused by high temperature during the combustion process of the burner 100, and further ensuring the fire transmission effect of the second fire transmission channel 70.

**[0189]** It should be understood that the use of the second protruding structure also improves the overall structural strength of the second body 20, reducing the problem of deformation of the second body 20 during the combustion process of the burner 100.

**[0190]** It should be pointed out that the second protruding structure is formed on the second body 20 and it forms an integrated structure with the second body 20. In the embodiment of the present application, the second protruding structure is a protrusion formed on the second body 20 by stamping to ensure the structural stability between the second protruding structure and the second body 20.

**[0191]** In some embodiments of the present application, the first body 10 is arranged at the top of the second body 20, and the two are connected and fixed by the first connection structure 30. The fire holes 40 and the accommodation cavity 80 are formed between the first body 10 and the second body 20. The second blocking structure 27 is formed on the second body 20, and the second blocking structure 27 is a second flanging structure formed at the edge of the second body 20.

**[0192]** Specifically, by setting the second blocking structure 27 as a second flanging structure, the connection strength between the second blocking structure 27 and the second body 20 is increased, and the deformation of the second blocking structure 27 caused by high temperature during the combustion process of the burner 100 is reduced, further ensuring the fire transmission effect of the second fire transmission channel 70.

**[0193]** It should be pointed out that the second flanging structure is formed on the second body 20 by stamping, which improves the convenience of processing and reduces the manufacturing cost.

**[0194]** As shown in FIGS. 16 to 26, according to some embodiments of the present application, a burner 100 is provided, which comprises two bodies, i.e., a first body 10 and a second body 20.

**[0195]** The first body 10 and the second body 20 are connected to each other through a first connection structure 30. The first body 10 and the second body 20 enclose to form an accommodation cavity and fire holes 40 be-

tween them. A gas pipeline can be communicated with the accommodation cavity; the number of fire holes 40 is multiple, and the fire holes 40 are communicated with the accommodation cavity respectively. The gas in the accommodation cavity can be sprayed out through the fire holes 40.

**[0196]** The number of the first connection structure 30 is at least one, and the arrangement of the position of the first connection structure 30 comprises two types. One is that the edge of the burner 100 is spaced apart from the first connection structure 30, and at the position where the first connection structure 30 is located, the fire hole 40 is blocked by the first connection structure 30; another type is that the first connection structure 30 is located at the edge of the burner 100, and the position where the first connection structure 30 is located is between two adjacent fire holes 40.

**[0197]** Specifically, the first body 10 and the second body 20 are connected and fixed to each other through the first connection structure 30; the fire holes 40 and the accommodation cavity are formed between the first body 10 and the second body 20. The gas in the gas pipeline enters the accommodation cavity and can be sprayed out through the fire holes 40, and the combustion of the burner 100 is achieved by ignition.

**[0198]** By setting the position of the first connection structure 30 to be spaced apart from the edge of the burner 100 and block the fire hole 40, or setting the first connection structure 30 to be located at the edge of the burner 100 and between two adjacent fire holes 40, it is possible to arrange the first connection structure 30 close to the position of the fire hole 40 to reduce the deformation of the burner 100 after long time use and ensure stable and safe operation of the burner 100.

**[0199]** It should be understood that when the burner 100 is burning, the gas is sprayed from the fire hole 40 and ignited to form a flame. The temperature at the position of the fire hole 40 is relatively high, and under the high temperature condition, the burner 100 is prone to deformation at the position of the fire hole 40 when it is used for a long time. The first connection structure 30 is used to connect and fix the first body 10 and the second body 20. The position where the first connection structure 30 is located is set close to the position of the fire hole 40, so that the strength at the position of the fire hole 40 can be enhanced by the first connection structure 30 to reduce the deformation of the fire hole 40 caused by high temperature, thereby reducing the difficulty of fire transmission, and the problems of backfire or flame lifting in the burner 100.

**[0200]** It should be pointed out that the burner 100 is provided with an air inlet 102 and a gas inlet 101 that are communicated with the accommodation cavity. The gas inlet 101 is used for communication with the gas pipeline, and the air inlet 102 is used for the entry of air. The gas in the gas pipeline and the air enter the accommodation cavity through the gas inlet 101 and the air inlet 102 respectively according to a preset ratio, so that the gas entering the accommodation cavity forms a mixed gas to meet the needs of gas combustion.

**[0201]** The shape of the burner 100 can be a square structure or a strip-shaped structure. In the embodiment of the present application, the burner 100 is a strip-shaped structure.

**[0202]** As shown in FIGS. 16, 18, 20, 23 and 26, the burner 100 is a sheet metal part. The first body 10 is arranged at the top of the second body 20, and the fire holes 40 are formed at the connection positions of the first body 10 and the second body 20. The first body 10 is a first sheet metal part, and the second body 20 is a second sheet metal part. The first sheet metal part is formed with a first cavity 11 and a fire hole profile 12-1 by stamping. The fire hole profile 12-1 is located on the outer side of the first cavity 11 and is communicated with the first cavity 11. The second sheet metal part is formed with a second cavity 21 by stamping. When the first body 10 is connected and fixed to the second body 20, the first body 10 abuts against the second body 20, and the first cavity 11 and the second cavity 21 are interlocked to form the accommodation cavity. The part of the second body 20 that is located on the outer side of the second cavity 21 is a plate-shaped structure; the plate-shaped structure abuts against the fire hole profile 12-1 and they enclose to form the fire holes 40. The structure of the burner 100 is simple and easy to process and manufacture, effectively reducing the manufacturing cost.

**[0203]** The first cavity 11 is formed by arching the first body 10 toward the side away from the second body 20, and the second cavity 21 is formed by arching the second body 20 toward the side away from the first body 10. After the two cavities are interlocked, they can form the accommodation cavity that is an approximately cylindrical structure. The gas inlet 101 and the air inlet 102 are located at one end of the cylindrical structure, and the first cavity 11 and the second cavity 21 enclose to form the gas inlet 101. There are two air inlets 102, one is provided on the first body 10 and the other is provided on the second body 20, with the two air inlets 102 facing each other. Setting the air inlets 102 and the gas inlet 101 at one end of the accommodation cavity with the cylindrical structure can increase the flow path of gas and air in the accommodation cavity, so that gas and air can be fully mixed, thereby improving the combustion efficiency of gas. At the same time, two air inlets 102 are provided, which can increase the amount of air entry, further ensuring that the gas can be fully combusted and improving the combustion efficiency of the gas.

**[0204]** In addition, the first cavity 11 comprises a first expansion section, a first contraction section, and a second expansion section, while the second cavity 21 comprises a third expansion section, a second contraction section, and a fourth expansion section. When the first body 10 and the second body 20 are matched with each other, the first expansion section and the third expansion section are interlocked to form a first expansion channel, the first contraction section and the second

contraction section are interlocked to form a contraction channel, and the second expansion section and the fourth expansion section are interlocked to form a second expansion channel. The first expansion channel and the second expansion channel are communicated with two opposite sides of the contraction channel to form the structure of the accommodation cavity. The first expansion channel is communicated with the gas inlet 101 and the air inlets 102 respectively, and the second expansion channel is communicated with the fire holes 40 respectively. The first expansion channel, the contraction channel, and the second expansion channel form a structure of a Venturi tube, which uses the contraction channel to compress the mixture of gas and air, thereby increasing the flow velocity of gas and air and effectively compensating for the kinetic energy loss during the flow process.

**[0205]** In addition, as shown in FIGS. 17, 20, 25 and 26, the fire hole profile 12-1 is a corrugated structure formed on the first body 10 by stamping, and the position where the second body 20 and the fire hole profile 12-1 are matched is a flat plate structure. The corrugated fire hole profile 12-1 is pressed against the flat plate structure, forming multiple parallel fire holes 40.

**[0206]** In other embodiments of the present application, the fire hole profile 12-1 can also be formed on the second body 20; at this time, the position on the first body 10 that corresponds to the fire hole profile 12-1 is a flat plate structure.

**[0207]** Further, it should be understood that as shown in FIGS. 16 and 18, the number of the fire holes 40 on the burner 100 is multiple, and the multiple fire holes 40 are distributed on both sides on the burner 100, comprising a first fire hole side and a second fire hole side, which are arranged on two opposite sides of the burner 100. Specifically, in the embodiment of the present application, the burner 100 has an approximately cylindrical structure, and the first fire hole side and the second fire hole side are located on two axial sides of the cylindrical structure respectively. The first fire hole side and the second fire hole side are both arranged in the extension direction of the cylindrical structure. Through the arrangement of the fire holes 40 of the burner 100, the combustion positions of the burner 100 can be increased, and the combustion capacity of the burner 100 can be enhanced. When the burner 100 is used in a cooking appliance, it can improve the cooking appliance's ability to process food.

**[0208]** In the embodiment of the present application, the burner 100 has multiple first connection structures 30, and any two adjacent first connection structures 30 are spaced apart from each other. The multiple first connection structures 30 comprise two parts, i.e., a first part and a second part. The first part is located on the first fire hole side and corresponds to the first fire hole side, and the second part is located on the second fire hole side and corresponds to the second fire hole side. By dividing the multiple first connection structures 30 into two parts, with each part corresponding to one fire hole side, the connection strength at the positions of the fire holes 40 is further ensured to reduce the deformation of the fire holes 40 due to high temperature during the use of the burner 100, thereby avoiding adverse effects on the burner 100 caused by deformation of the fire holes 40 (such as difficulty in fire transmission, backfire, or flame lifting).

**[0209]** It should be understood that all the first connection structures 30 in the first part are spaced apart (in the embodiment of the present application, they are spaced apart at equal intervals), and at the same time, the first connection structures 30 in the second part are also spaced apart (in the embodiment of the present application, they are spaced apart at equal intervals). By arranging the multiple first connection structures 30 such that they are dispersed on the burner 100, the connection positions between the first body 10 and the second body 20 are increased, further enhancing the connection strength between the first body 10 and the second body 20, and reducing the problem of deformation caused by stress concentration.

**[0210]** Further, as shown in FIGS. 16 and 18, the number of the first connection structures 30 is multiple, and the first connection structures 30 are allocated into equal numbers of first and second parts. The first part is arranged corresponding to the first fire hole side of the fire holes 40, and the second part is arranged corresponding to the second fire hole side of the fire holes 40. The first connection structures 30 located in the first part and the first connection structures 30 located in the second part are arranged in a one-to-one correspondence.

**[0211]** Specifically, in the embodiment of the present application, the burner 100 has an approximately cylindrical structure. The first fire hole side and the second fire hole side of the fire holes 40 both extend in the axial direction of the cylindrical structure, and are symmetrically arranged with respect to the axial direction of the cylindrical structure. The first part of the multiple first connection structures 30 are arranged corresponding to the first fire hole side, and the second part of the multiple first connection structures 30 are arranged corresponding to the second fire hole side. By setting the number of first connection structures 30 in the first part to be consistent with the number of first connection structures 30 in the second part and arranging them in a one-to-one correspondence, the strengths of the connection structures on two opposite sides of the burner 100 can be made the same, further ensuring the strength and stability of the overall structure of the burner 100.

**[0212]** Further, the multiple fire holes 40 are configured into two fire hole sides, i.e., the first fire hole side and the second fire hole side. Both the first fire hole side and the second fire hole side are arranged in the axial direction of the burner 100 with the approximately cylindrical structure. The first fire hole side and the second fire hole side are axisymmetric with respect to the cylindrical structure; the first part of the multiple first connection structures 30 are arranged corresponding to the first fire hole side, while the second part of the multiple first connection structures 30 are arranged corresponding to the second

fire hole side.

**[0213]** The number of fire holes 40 comprised in the first fire hole side is the same as the number of fire holes 40 comprised in the second fire hole side, and they are arranged in a one-to-one correspondence, so that the amounts of flame generated on two opposite sides of the burner 100 are the same, enabling the burner 100 to evenly release heat to the outside. When the burner 100 is used in a cooking appliance, it ensures the cooking effect of the burner 100 on food.

**[0214]** In the embodiment of the present application, the arrangement of the position of the first connection structure 30 comprises that the first connection structure 30 is spaced apart from the edge of the burner 100, and the first connection structure 30 is arranged at the edge of the burner 100, etc.

**[0215]** In some embodiments of the present application, as shown in FIGS. 16 and 17, the arrangement position of the first connection structure 30 on the burner 100 is spaced apart from the edge of the burner 100. The multiple fire holes 40 of the burner 100 comprise multiple main fire holes 41 and multiple auxiliary fire holes 42. The multiple main fire holes 41 are spaced apart on the burner 100, and one auxiliary fire hole 42 is provided between two adjacent main fire holes 41. At the position where the first connection structure 30 is located, the auxiliary fire hole 42 is blocked by the first connection structure 30.

**[0216]** Specifically, during the use of the burner 100, the gas in the accommodation cavity is sprayed out through the main fire holes 41 and the auxiliary fire holes 42 respectively, and the sprayed gas is ignited to produce flames, thereby providing heat for the cooking process. The flow cross section of the main fire hole 41 is larger than that of the auxiliary fire hole 42, and the auxiliary fire hole 42 is arranged between two adjacent main fire holes 41 (the distances between the auxiliary fire hole 42 and two adjacent main fire holes 41 can be equal or unequal; in this embodiment, the distances between the auxiliary fire hole 42 and two adjacent main fire holes 41 are equal to ensure better fire transmission effect between two adjacent main fire holes 41). The auxiliary fire hole 42 can perform fire transmission operation on two adjacent main fire holes 41 to ensure that the burner 100 can burn fully.

**[0217]** The position where the first connection structure 30 is located blocks the auxiliary fire hole 42, so that the first connection structure 30 is located near the fire hole 40 to improve the connection strength at the position of the fire hole 40, further reducing the deformation of the fire hole 40 caused by high combustion temperature, and enabling the stable and safe operation of the burner 100.

**[0218]** It should be understood that at the position where the first connection structure 30 is located, if the main fire hole 41 is blocked by the first connection structure, it can easily cause flameout of the burner 100 at this time. Therefore, at the position where the first connection structure 30 is located, the first connection structure 30 is arranged to block the auxiliary fire hole 42, thereby reducing the influence of the first connection structure 30 on the combustion process and ensuring the stable and efficient operation of the burner 100.

**[0219]** It should be pointed out that at the position where the first connection structure 30 is located, the first connection structure 30 blocks one auxiliary fire hole 42. In order to ensure that the blocked auxiliary fire hole 42 can function, a corresponding gas introduction structure can be provided, such as a flow guide channel which communicates the accommodation cavity with the blocked auxiliary fire hole 42, or a gas communication structure which communicates the blocked auxiliary fire hole 42 with the adjacent main fire hole 41.

**[0220]** In addition, the first fire hole side and the second fire hole side are respectively arranged on two opposite sides of the burner 100. In order to achieve fire transmission between the two fire hole sides, a fire transmission structure is also provided on the burner 100, and the fire transmission structure is communicated with the interior of the accommodation cavity. The gas in the accommodation cavity is sprayed out through the fire transmission structure and ignited, so that the two fire hole sides can be induced to burn, thus achieving the overall combustion of the burner 100.

**[0221]** In addition, the fire transmission structure is arranged at the top of the burner 100, and users can observe the fire transmission situation of the burner 100 through the fire transmission structure, thereby improving the user experience during use.

**[0222]** Further, as shown in FIGS. 16 and 17, the auxiliary fire hole 42 has a communication position with the accommodation cavity, and the position where the first connection structure 30 is located is at this communication position. Specifically, the position where the first connection structure 30 is located is the root of the auxiliary fire hole 42 (the communication position between the auxiliary fire hole 42 and the accommodation cavity). By setting the first connection structure 30 at the root of the auxiliary fire hole 42 and using the first connection structure 30 to connect and fix the first body 10 and the second body 20, the positional relationship between the first connection structure 30, the fire holes 40, and the accommodation cavity can be also taken into consideration, so that the position where the first connection structure 30 is located not only enhances the strength at the position of the fire hole 40, but also increases the strength at the position of the accommodation cavity, thereby improving the overall structural strength of the burner 100 and ensuring its stable and safe use.

**[0223]** It should be understood that setting the first connection structure 30 at the root of the auxiliary fire hole 42 (the communication position between the auxiliary fire hole 42 and the accommodation cavity) can reduce the adverse effect of the first connection structure 30 on the accommodation cavity and ensure the smooth flow of gas inside the accommodation cavity.

**[0224]** In some examples of this embodiment, as

shown in FIGS. 20 to 26, the first connection structure 30 comprises a first connection part 13 and a second connection part 22. The first connection part 13 is arranged on the first body 10, and the second connection part 22 is arranged on the second body 20. One of the second connection part 22 and the first connection part 13 is a protruding structure, and the other of the second connection part 22 and the first connection part 13 is a hole structure. After the protruding structure passes through the hole structure, they are riveted and fitted, thereby connecting and fixing the first body 10 and the second body 20.

**[0225]** Specifically, in this example, as shown in FIGS. 20 to 26, the second connection part 22 is the protruding structure, and the first connection part 13 is the hole structure. When the first body 10 is connected and fixed to the second body 20, the first body 10 abuts against the second body 20, the protruding structure passes through the hole structure, and the part of the protruding structure that passes out of the hole structure is riveted using riveting. The riveting fixation has a simple structure which is easy to process. In addition, the riveting structure has high strength and good stability, which can further increase the strength of the fire hole 40 and further reduce the deformation of the fire hole 40 caused by high temperature.

**[0226]** It should be pointed out that the protruding structure is formed on the second body 20. The protruding structure can form an integrated structure with the second body 20, or it is a separate structure from the second body 20 (they are connected and fixed by welding or bonding).

**[0227]** Further, in this example, the protruding structure is formed on the second plate, and the protruding structure is a flanging hole with a flanging in the thickness direction of the second body 20.

**[0228]** When the first plate is connected and fixed to the second plate, the first plate is pressed against the top of the second plate. The flanging of the flanging hole passes through the hole structure on the first body 10, and the part of the flanging that passes out of the hole structure can be flattened using a riveting device. The structure of the flanging hole is simple and can be processed and manufactured by stamping, that is, the structure of the second body 20 itself is utilized to form a corresponding connection structure, thereby saving connecting components and reducing the manufacturing cost of the product.

**[0229]** It should be pointed out that the height of the flanging is larger than the depth of the hole structure to ensure that the flanging can pass out of the flanging hole to effectively achieve riveting fixation.

**[0230]** In addition, in this example, the hole structure of the first connection part 13 is a circular hole, and the flanging hole is also a circular hole, which is flangingd into a cylindrical structure. The outer diameter of the cylindrical structure is smaller than the diameter of the hole structure to ensure that the flanging can smoothly pass through the hole structure, so that the installation process of the first body 10 and the second body 20 can be smoothly implemented.

**[0231]** Further, the first connection part 13 is formed on the first body 10 and configured as a hole structure, and the second connection part 22 is formed on the second body 20 and configured as a flanging hole structure. An avoidance structure 15 is also provided on the first body 10. The avoidance structure 15 is located radially outside the hole structure and is arranged around the circumference of the hole.

**[0232]** When the first body 10 is connected and fixed to the second body 20, the first body 10 is pressed against the top of the second body 20, and the flanging of the flanging hole passes through the hole structure on the first body 10. The part of the flanging that passes out of the hole structure is flattened using a riveting device, so that it is pressed against the avoidance structure 15, thereby forming the first connection structure 30 (the structure formed by riveting the hole structure and the flanging of the flanging hole), thus connecting and fixing the first body 10 and the second body 20.

**[0233]** It should be understood that in the present application, the fire hole profile 12-1 is formed on the first body 10; the first connection part 13, which is the hole structure, is also formed on the first body 10. The hole structure is located at the position of the fire hole profile 12-1 (the fire hole profile 12-1 for forming the auxiliary fire hole 42). By providing the avoidance structure 15 and arranging it around the circumference of the hole structure, there is sufficient space for riveting around the hole structure to ensure that the riveting device can effectively perform the riveting operation, thereby connecting and fixing the first body 10 and the second body 20.

**[0234]** It should be pointed out that in the present application, as shown in FIG. 24, the diameter of the hole structure is 4mm (L1 in FIG. 24 is the diameter of the hole structure), and the avoidance structure 15 is a circular ring surface, which is concentric with the hole structure. The outer diameter of the circular ring surface is 7mm (L2 in FIG. 24 is the outer diameter of the circular ring surface), thus ensuring the effective connection and fixation of the riveting device.

**[0235]** In addition, in the present application, the first connection structure 30 is located at the root of the auxiliary fire hole 42 (the communication position between the auxiliary fire hole 42 and the accommodation cavity). A part of the structure of the avoidance structure 15 occupies the fire hole profile 12-1, and another part of the structure occupies the first cavity 11 used to form the accommodation cavity, so as to ensure sufficient riveting space.

**[0236]** In some examples of this embodiment, the burner 100 comprises a fastener; a first hole is provided on the first body 10, and a second hole is provided on the second body 20. When the first body 10 is connected and fixed to the second body 20, the first body 10 is arranged at the top of the second body 20 so that the first hole is

concentric with the second hole, and the fastener is fitted with the first hole and the second hole respectively to achieve the connection and fixation of the first body 10 and the second body 20.

**[0237]** It should be pointed out that the fastener can be a rivet, a pin, or a screw, etc.

**[0238]** In some embodiments of the present application, the first body 10 and the second body 20 are connected and fixed by the first connection structure 30, which is located at the edge of the burner 100 and between two adjacent fire holes 40.

**[0239]** By placing the first connection structure 30 at the edge of the burner 100 and between two adjacent fire holes 40, the first connection structure 30 is positioned closer to the combustion positions of the fire holes 40. By utilizing the first connection structure 30, the strength at the positions of the fire holes 40 can be further ensured, thereby effectively reducing the deformation of the fire holes 40 during use and enabling the burner 100 to operate stably and effectively.

**[0240]** Specifically, a flanging structure is formed on the first body 10 or the second body 20. When the first body 10 is connected and fixed to the second body 20, the first body 10 is pressed against the second body 20, and a flanging operation is performed on the flanging structure, causing the flanging structure to bend and press against the other body, thereby forming the first connection structure 30 to connect and fix the first body 10 and the second body 20. The first connection structure 30 formed by the flanging structure has a simple structure, and the first connection structure 30 formed after connection has high strength and good stability.

**[0241]** Further, as shown in FIGS. 16, 18, 20, 22 and 26, the burner 100 also comprises a second connection structure 50. The number of the second connection structure 50 is at least one, and the second connection structure 50 is used to connect and fix the first body 10 and the second body 20.

**[0242]** By setting the second connection structure 50, the fixation positions between the first body 10 and the second body 20 are increased, further improving the overall strength and stability of the burner 100.

**[0243]** It should be pointed out that a third connection part 14 is provided on the first body 10, and a fourth connection part 23 is provided on the second body 20. The third connection part 14 cooperates with the fourth connection part 23 to form the second connection structure 50. The structure of the third connection part 14 is the same as that of the first connection part 13, and the structure of the fourth connection part 23 is the same as that of the second connection part 22. For details, reference may be made to the embodiments of the first connection part 13 and the second connection part 22. The specific embodiments of the third connection part 14 and the fourth connection part 23 will not be described repeatedly in the present application.

**[0244]** As shown in FIGS. 27 to 36, according to some embodiments of the present application, a burner 100 for a cooking appliance 1000 is provided, in which a fire transmission structure 21-1, a fire hole group 30-1, and an accommodation cavity are formed.

**[0245]** The accommodation cavity is communicated with the fire hole group 30-1, and the accommodation cavity is communicated with at least part of the fire transmission structure 21-1. When the burner 100 is used in a cooking appliance 1000, the accommodation cavity is communicated with a gas pipeline; the fire transmission structure 21-1 and the fire hole group 30-1 are both offset from an ignition site 301 of the cooking appliance 1000. The communication position between the accommodation cavity and the fire transmission structure 21-1 is used for an ignition element 200 to ignite the burner 100.

**[0246]** Specifically, as shown in FIGS. 34 to 36, when the burner 100 is used in the cooking appliance 1000, the burner 100 is installed inside the body of the cooking appliance 1000, and the fire transmission structure 21-1 and the fire hole group 30-1 are both offset from the ignition site 301 of the cooking appliance 1000. When it is necessary to ignite the burner 100, the ignition element 200 can be used to ignite the gas sprayed from the fire transmission structure 21-1 at the ignition site 301.

**[0247]** The ignition element 200 ignites the burner 100 through the fire transmission structure 21-1 formed on the burner 100. Compared with the prior art, there is no need to provide a separate ignition barrel, saving materials and assembly processes, and thereby reducing the manufacturing cost. In addition, when the burner 100 is used in the cooking appliance 1000, its fire transmission structure 21-1 and fire hole group 30-1 are both offset from the ignition site 301, reducing the situation where the combustion heat of the burner 100 directly enters a cooking chamber 400 through the ignition site 301, thereby improving the uniformity of heating temperature.

**[0248]** It should be understood that as shown in FIGS. 34 to 36, when the burner 100 of the cooking appliance 1000 performs the ignition operation, the ignition element 200 is arranged at the ignition site 301, and the gas pipeline is communicated with the accommodation cavity. The gas enters the accommodation cavity, with a part of the gas being sprayed out through the fire hole group 30-1, and a part of the gas being sprayed out through the communication position between the fire transmission structure 21-1 and the accommodation cavity. After the gas sprayed from the fire transmission structure 21-1 reaches the ignition site 301, the ignition element 200 will ignite the gas at the ignition site 301, and the combusted gas will induce the gas sprayed from the fire hole group 30-1 to burn through the fire transmission structure 21-1, thereby achieving the ignition operation of the entire burner 100.

**[0249]** In addition, the fire transmission structure 21-1 is formed on the burner 100 and located on the outer side of the accommodation cavity. At the same time, the fire transmission structure 21-1 is communicated with the fire hole group 30-1, and the fire transmission structure 21-1 is used to induce the gas sprayed from the fire hole group

30-1 to burn, thereby ensuring that the burner 100 can burn fully.

**[0250]** In addition, the fire transmission structure 21-1 is formed on the burner 100, that is, the fire transmission structure 21-1 forms an integrated structure with the burner 100. The fire transmission structure 21-1 forms an integrated structure with the burner 100, and it can be processed synchronously with the burner 100 without subsequent need for separate installation of the fire transmission structure 21-1, thereby saving materials (such as solder or fasteners) and installation steps during the installation process, and effectively reducing the manufacturing cost of the burner 100 on this basis.

**[0251]** It should be pointed out that the ignition site 301 of the cooking appliance 1000 is usually located inside the cooking chamber 400 of the cooking appliance 1000 for the convenience of user operation during use.

**[0252]** In addition, the ignition element 200 can be a handheld ignition element or a fixed ignition element arranged at the ignition site 301.

**[0253]** As shown in FIG. 36, when the burner 100 is used in the cooking appliance 1000, the fire transmission structure 21-1 and the fire hole group 30-1 are both offset from the ignition site 301 of the cooking appliance 1000. Specifically, the fire transmission structure 21-1 and the fire hole group 30-1 are both located outside the projection area of the ignition site 301 so that the amount of heat that directly enters the cooking chamber 400 through the ignition site 301 during the combustion process of the burner 100 can be reduced, thereby improving the uniformity of temperature.

**[0254]** Further, it should be understood that as shown in FIGS. 27 to 29, the burner 100 comprises two parts, i.e., a first body 10 and a second body 20. The first body 10 and the second body 20 cooperate to form the burner 100, and the accommodation cavity is formed through the cooperation of the first body 10 and the second body 20.

**[0255]** Specifically, the burner 100 is divided into two parts, and the complete structure of the burner 100 is formed through the cooperation of the two parts, thereby improving the convenience of processing and manufacturing the burner 100 and reducing the manufacturing cost of the burner 100.

**[0256]** It should be pointed out that as shown in FIGS. 30 to 32, the first body 10 is a first plate-shaped member, and the second body 20 is a second plate-shaped member. A first cavity 1115 is formed on the first plate-shaped member by stamping, and a second cavity 21 is formed on the second plate-shaped member. After the first body 10 is connected and fixed to the second body 20, the first cavity 1115 and the second cavity 21 are interlocked to form the complete accommodation cavity. When the burner 100 is used in the cooking appliance 1000, the gas pipeline is communicated with the accommodation cavity so that gas can enter the accommodation cavity and cook food through combusting and heating.

**[0257]** In addition, the burner 100 is provided with a gas inlet and an air inlet 10211; the gas inlet is used for communication with the gas pipeline, and the air inlet 10211 is used for the entry of air into the accommodation cavity. By providing the gas inlet and the air inlet 10211, gas and air can be mixed in a preset ratio, thereby meeting the combustion needs of the burner 100.

**[0258]** In the embodiment of the present application, as shown in FIG. 27, the air inlet 10211 is provided on the first body 10, and the first body 10 and the second body 20 enclose to form the gas inlet.

**[0259]** Meanwhile, in the embodiment of the present application, the burner 100 has a long strip-shaped structure; the air inlet 10211 and the gas inlet are located at one end of the long strip-shaped structure, and the position where the accommodation cavity is communicated with the fire transmission structure 21-1 comprises at least the other end of the long strip-shaped structure. Through this arrangement, the accommodation cavity can be filled with gas to ensure the stability of gas output, thereby ensuring the uniformity of flame during the combustion process of the burner 100 and improving the quality of food cooking.

**[0260]** In addition, the first body 10 and the second body 20 can be connected and fixed by welding, screw connection, riveting, or bonding.

**[0261]** In the embodiment of the present application, as shown in FIGS. 27 to 33, the first body 10 and the second body 20 are connected and fixed by riveting. Specifically, a first riveting profile 13-1 is formed on the first body 10 by stamping, and a second riveting profile 25-1 is formed on the second body 20 by stamping. When the first body 10 is matched with the second body 20, the first riveting profile 13-1 and the second riveting profile 25-1 are correspondingly arranged, and the first riveting profile 13-1 and the second riveting profile 25-1 are riveted together by riveting, thereby achieving the connection and fixation between the first body 10 and the second body 20.

**[0262]** The first riveting profile 13-1 is a riveting hole (the riveting hole is a concave hole, which can prevent the structure from protruding, avoid scratching assembly personnel or interfering with other components, etc.), and the second riveting profile 25-1 is a riveting head (in other embodiments, the second riveting profile 25-1 can be a riveting hole, and the first riveting profile 13-1 can be a riveting head). The riveting head is inserted into the riveting hole, and the riveting head is deformed using a riveting device to rivet and fix the first body 10 and the second body 20. The riveting method facilitates assembly and has high connection strength and good stability. In addition, there are multiple riveting points between the first body 10 and the second body 20 (the structure formed by riveting and fixing the first riveting profile 13-1 and the second riveting profile 25-1), so as to increase the strength of the connection and fixation between the first body 10 and the second body 20.

**[0263]** In some embodiments of the present application, the fire hole group 30-1 is formed on the first body 10. By setting the fire hole group 30-1 on the first body 10, it is

possible to synchronously process the fire hole group 30-1 at the same time of processing the first body 10, which improves the convenience of processing and reduces the manufacturing cost.

**[0264]** It should be pointed out that the fire hole group 30-1 formed on the first body 10 can be punched on the first body 10 by stamping, thereby forming the fire hole group 30-1. Stamping processing is convenient and can effectively reduce the manufacturing cost.

**[0265]** In some embodiments of the present application, the fire hole group 30-1 is formed on the second body 20. By setting the fire hole group 30-1 on the second body 20, it is possible to synchronously process the fire hole group 30-1 at the same time of processing the second body 20, which improves the convenience of processing and reduces the manufacturing cost.

**[0266]** It should be pointed out that the fire hole group 30-1 formed on the second body 20 can be punched on the second body 20 by stamping, thereby forming the fire hole group 30-1. Stamping processing is convenient and can effectively reduce the manufacturing cost.

**[0267]** In some embodiments of the present application, as shown in FIGS. 27 to 33, after the first body 10 and the second body 20 are matched with each other, there are connection positions between them, and the fire hole group 30-1 is formed at the connection positions respectively.

**[0268]** Specifically, the first body 10 is a first plate-shaped member, and the second body 20 is a second plate-shaped member. A fire hole profile 12-1 is formed on one of the first body 10 and the second body 20 (the fire hole profile 12-1 is a protruding structure formed toward the other body and processed by stamping), and the other of the first body 10 and the second body 20 has a flat plate structure. When the first body 10 and the second body 20 are matched with each other, the fire hole profile 12-1 is pressed against the flat plate structure. The gaps between the first body 10 and the second body 20 on both sides of the fire hole profile 12-1 form fire holes of the fire hole group 30-1. The structure in this embodiment is easy to process during the manufacturing process, effectively improving processing convenience, and further reducing the manufacturing cost.

**[0269]** It should be pointed out that in this embodiment, the fire hole profile 12-1 is formed on the first body 10, and the number of fire hole profile 12-1 is multiple. After the first body 10 is assembled with the second body 20, the fire hole group 30-1 is formed synchronously without the need for separate welding or other operations.

**[0270]** Further, the fire transmission structure 21-1 can be arranged on the first body 10, or the fire transmission structure 21-1 can also be arranged on the second body 20.

**[0271]** Specifically, by arranging the fire transmission structure 21-1 on the second body 20 or the first body 10, the convenience of arranging the fire transmission structure 21-1 is improved, which can meet the fire transmission requirements of different burners 100 and effectively meet the combustion needs of the burners 100.

**[0272]** In the embodiment of the present application, as shown in FIGS. 27 to 35, the first body 10 and the second body 20 are arranged up and down, with the second body 20 located at the bottom and the first body 10 located at the top. The fire transmission structure 21-1 is arranged on the second body 20. At the same time, the fire transmission structure 21-1 is arranged in the extension direction of the connection positions between the first body 10 and the second body 20.

**[0273]** Specifically, the top size of the second body 20 is larger than the bottom size of the first body 10. When the first body 10 is fixed at the top of the second body 20, the part of the second body 20 that is located outside the first body 10 has residual structure. The fire transmission structure 21-1 is formed on the residual structure of the second body 20 and is arranged around the connection positions between the first body 10 and the second body 20.

**[0274]** When the burner 100 of the cooking appliance 1000 performs the ignition operation, the ignition element 200 is arranged at the ignition site 301, and the gas pipeline is communicated with the accommodation cavity. The gas enters the accommodation cavity, with a part of the gas being sprayed out through the fire hole group 30-1, and a part of the gas being sprayed out through the communication position between the fire transmission structure 21-1 and the accommodation cavity. After the gas sprayed from the fire transmission structure 21-1 reaches the ignition site 301, the ignition element 200 will ignite the gas at the ignition site 301, and the combusted gas will induce the gas sprayed from the fire hole group 30-1 to burn through the fire transmission structure 21-1, thereby achieving the ignition operation of the entire burner 100.

**[0275]** Through the above arrangement of the fire transmission structure 21-1, effective fire transmission between the fire transmission structure 21-1 and the fire hole group 30-1 is ensured, thereby ensuring sufficient combustion of the burner 100.

**[0276]** It should be understood that by arranging the fire transmission structure 21-1 on the second body 20, when the user is using the cooking appliance 1000, the user can observe the fire transmission process from top to bottom, achieving explicit fire transmission.

**[0277]** Further, as shown in FIG. 27, there are two fire hole groups 30-1, i.e., a first fire hole group 31-1 and a second fire hole group 32-1. The second fire hole group 32-1 and the first fire hole group 31-1 are located on two opposite sides of the burner 100, and both the first fire hole group 31-1 and the second fire hole group 32-1 are arranged in the extension direction of the burner 100.

**[0278]** Specifically, the first fire hole group 31-1 and the second fire hole group 32-1 are respectively provided on two opposite sides of the burner 100, and the first fire hole group 31-1 and the second fire hole group 32-1 are respectively communicated with the accommodation cavity. The fire transmission structure 21-1 is arranged

on the outer side of the accommodation cavity, and the accommodation cavity is communicated with at least part of the fire transmission structure 21-1. Both the first fire hole group 31-1 and the second fire hole group 32-1 are communicated with the fire transmission structure 21-1. When the burner 100 is used to burn the gas, the ignition element 200 ignites the gas through the fire transmission structure 21-1, and the flame flows along the fire transmission structure 21-1. The fire transmission structure 21-1 is used to ignite the gas sprayed from the two fire hole groups 30-1, so that the burner 100 burns the gas and the heat of combustion is used to cook food.

**[0279]** The fire transmission structure 21-1 is formed on the burner 100, and the fire transmission structure 21-1 is used to communicate the first fire hole group 31-1 with the second fire hole group 32-1. Compared with the prior art, there is no need to set a flame stabilization plate or other structures, thus achieving structural simplification and assembly process simplification, and reducing the manufacturing cost of the burner 100.

**[0280]** In addition, the first fire hole group 31-1 and the second fire hole group 32-1 are provided, and in the extension direction of the burner 100, the first fire hole group 31-1 and the second fire hole group 32-1 are located on two opposite sides of the burner 100, thereby increasing the combustion capacity of the burner 100 and improving its combustion performance, thereby enhancing the ability to provide heat for the cooking appliance 1000.

**[0281]** It should be pointed out that in the extension direction of the burner 100 (in this embodiment, the burner 100 is a long strip-shaped structure, and the extension direction is the length direction of the burner 100, that is, the direction with the maximum size of the burner 100 is its length direction), the first fire hole group 31-1 and the second fire hole group 32-1 are respectively arranged on two opposite sides of the burner 100; at least one first fire hole is comprised in the first fire hole group 31-1, and at least one second fire hole is comprised in the second fire hole group 32-1.

**[0282]** Further, the first fire hole group 31-1 comprises first fire holes, and the number of first fire holes is multiple (three or more), all of which are arranged at intervals in a preset direction on the burner 100 (at equal intervals or unequal intervals). Similarly, the second fire hole group 32-1 comprises second fire holes, and the number of second fire holes is multiple (three or more), all of which are also arranged at intervals in the preset direction on the burner 100 (at equal intervals or unequal intervals).

**[0283]** In addition, the preset direction is the extension direction of the burner 100. By arranging multiple first fire holes in the first fire hole group 31-1 and multiple second fire holes in the second fire hole group 32-1 along the length direction of the burner 100, the number of fire holes on the burner 100 can be increased, thereby enhancing the combustion capacity of burner 100.

**[0284]** In addition, the shape of the first fire hole in the first fire hole group 31-1 can be a circular hole, an elliptical hole, a polygonal hole, or other irregularly shaped holes, while the shape of the second fire hole in the second fire hole group 32-1 can also be a circular hole, an elliptical hole, a polygonal hole, or other irregularly shaped holes. In the embodiment of the present application, the shapes of the first and second fire holes can be adaptively adjusted as needed, which will not be described in detail herein.

**[0285]** Further, as shown in FIGS. 27, 28, 32 and 33, the fire transmission structure 21-1 comprises a first burning-induction section 21-12, a fire transmission section 21-11, and a second burning-induction section 21-13 that are connected. The first fire hole group 31-1 is arranged corresponding to the first burning-induction section 21-12, the second fire hole group 32-1 is arranged corresponding to the second burning-induction section 21-13, the fire transmission section 21-11 communicates the first burning-induction section 21-12 with the second burning-induction section 21-13, and the accommodation cavity is communicated with the fire transmission section 21-11. When the burner 100 is used in the cooking appliance 1000, the fire transmission section 21-11 is located near the ignition site 301 and is configured to be ignited through the ignition element.

**[0286]** Specifically, when the burner 100 of the cooking appliance 1000 performs the ignition operation, the ignition element 200 is arranged at the ignition site 301, and the gas pipeline is communicated with the accommodation cavity. The gas enters the accommodation cavity, with a part of the gas being sprayed out through the fire hole group 30-1, and a part of the gas being sprayed out through the communication position between the fire transmission structure 21-1 and the accommodation cavity. After the gas sprayed from the fire transmission structure 21-1 reaches the ignition site 301, the ignition element 200 will ignite the gas at the ignition site 301, and the combusted gas will induce the gas sprayed from the first fire hole group 31-1 and the gas sprayed from the second fire hole group 32-1 respectively to burn through the fire transmission structure 21-1, thereby achieving the ignition operation of the entire burner 100.

**[0287]** Through the cooperation of two burning-induction sections and the fire transmission section 21-11, the effective induced burning of the burner 100 is achieved, thereby ensuring the full combustion of the burner 100.

**[0288]** It should be pointed out that in the embodiment of the present application, the first burning-induction section 21-12 and the second burning-induction section 21-13 are arranged in parallel and spaced apart, and the fire transmission section 21-11 connects one end of the first burning-induction section 21-12 with one end of the second burning-induction section 21-13, so that during the combustion process of the burner 100, the first fire hole group 31-1 and the second fire hole group 32-1 can be fully ignited, thereby ensuring the combustion effect of the burner 100.

**[0289]** In addition, the first burning-induction section 21-12 can be formed by a first flanging of the second body

20, and the first flanging is spaced apart from the first body 10 (the first body 10 has the position of the first fire hole group 31-1), thereby forming a first channel, which is the first burning-induction section 21-12.

**[0290]** Similarly, the second burning-induction section 21-13 can also be formed by a second flanging of the second body 20, and the second flanging is spaced apart from the first body 10 (the first body 10 has the position of the second fire hole group 32-1), thereby forming a second channel, which is the second burning-induction section 21-13.

**[0291]** Further, the extension direction of the first fire hole group 31-1 is consistent with that of the first burning-induction section 21-12. Specifically, by setting the extension directions of the first fire hole group 31-1 and the first burning-induction section 21-12 to be consistent, the burning-induction path can be shortened, achieving rapid induced burning of the gas sprayed from the first fire hole group 31-1.

**[0292]** Further, the extension direction of the second fire hole group 32-1 is consistent with that of the second burning-induction section 21-13. Specifically, by setting the extension directions of the second fire hole group 32-1 and the second burning-induction section 21-13 to be consistent, the burning-induction path can be shortened, achieving rapid induced burning of the gas sprayed from the second fire hole group 32-1.

**[0293]** Further, the fire transmission section 21-11 is communicated with the accommodation cavity of the burner 100 through a communication structure, which is a communication hole group. Specifically, a communication hole group is provided to achieve effective communication between the accommodation cavity and the fire transmission section 21-11, so that the gas in the accommodation cavity can enter the fire transmission section 21-11, and then the fire transmission section 21-11 is used to achieve the fire transmission operation on the two fire hole groups, so that the burner 100 can burn fully.

**[0294]** It should be pointed out that the communication hole group comprises at least one communication hole. In the embodiment of the present application, the communication hole group comprises multiple (three or more) communication holes, and all the communication holes are spaced apart in the extension direction of the fire transmission section 21-11. By setting multiple communication holes, the amount of gas entering the fire transmission section 21-11 is increased, ensuring the effect of fire transmission and effectively ensuring the effective fire transmission of the first fire hole group 31-1 and the second fire hole group 32-1.

**[0295]** In addition, as shown in FIGS. 32, 33 and 35, in the embodiment of the present application, multiple split fire profiles 26-1 are formed on the second body 20 (which are formed by protruding toward the first body 10), and the positions on the first body 10 that correspond to the second body 20 are flat plate structures. When the first body 10 and the second body 20 are connected and fixed, the communication holes are located on both sides of the split fire profiles 26-1. The split fire profiles 26-1 are manufactured by stamping, which can reduce the manufacturing cost, make the structure of the burner simpler, and lower the manufacturing cost.

**[0296]** It should be understood that the split fire profile 26-1 can also be formed on the first body 10, and the structure of the split fire profile 26-1 formed on the first body 10 is opposite to the structure of the split fire profile 26-1 formed on the second body 20. For details, reference may be made to the structure of the split fire profile 26-1 formed on the second body 20.

**[0297]** Further, as shown in FIGS. 27 to 29, 32, 33 and 35, a flame stabilization structure 23-1 is also provided on the burner 100. The flame stabilization structure 23-1 is arranged on the outer side of the fire transmission structure 21-1 in a spaced apart manner, and the communication position between the fire transmission structure 21-1 and the accommodation cavity is arranged corresponding to the flame stabilization structure 23-1.

**[0298]** Specifically, by setting the flame stabilization structure 23-1, the fire transmission section 21-11 forms a channel like structure. When the fire transmission operation is performed, it can be ensured that the flame effectively flows along the fire transmission section 21-11, thereby ensuring the effect of fire transmission.

**[0299]** It should be pointed out that as shown in FIGS. 28 to 31 and 35, a fire transmission profile 17 is provided on the first body 10, which is formed on the first body 10 by stamping. After the first body 10 is connected and fixed to the second body 20, the fire transmission profile 17 is located above the fire transmission section 21-11 (the fire transmission profile 17 is spaced apart from the flame stabilization structure 23-1). By setting the fire transmission profile 17, the external influence on the fire transmission process is further avoided, and the fire transmission effect is further improved.

**[0300]** Further, as shown in FIGS. 27 to 29, 32, 33 ,35 and 36, the burner 100 also has a first guide structure 22-1, which has two opposite ends. One end is connected to the burner 100, while the other end is suspended and inclined toward the side away from the fire transmission structure 21-1.

**[0301]** Specifically, when the burner 100 is used in the cooking appliance 1000, the burner 100 is installed inside the body of the cooking appliance 1000, and the suspended end of the first guide structure 22-1 is arranged toward the ignition site 301 of the body. The first guide structure 22-1 is arranged between the fire transmission structure 21-1 and the ignition site 301, and the first guide structure 22-1 is used to guide the gas sprayed from the fire transmission structure 21-1 to effectively reach the ignition site 301, thereby ensuring the ignition effect.

**[0302]** It should be understood that the suspended end of the guide structure is inclined toward the side away from the fire transmission structure 21-1, so that the fire transmission structure 21-1 offset from the ignition site 301 can be ignited by the ignition element 200, thereby

ensuring effective combustion of the burner 100.

**[0303]** It should be pointed out that as shown in FIG. 28, the guide structure has a guide surface, which is set at a preset angle a with the burner 100. The value of the preset angle a is larger than 90° and smaller than 180° to ensure the guiding effect on the gas.

**[0304]** In some embodiments of the present application, the first guide structure 22-1 may be a protruding structure formed on the second body 20 of the burner 100, which is formed by stamping. By forming the first guide structure 22-1 by stamping, the amount of material used in the manufacturing process can be reduced, thereby reducing the manufacturing cost. In addition, the first guide structure 22-1, which is a protruding structure, is formed by stamping and forms an integrated structure with the second body 20 of the burner 100, which improves the connection strength between the first guide structure 22-1 and the second body 20. At the same time, the first guide structure 22-1 can be processed synchronously at the same time of processing the second body 20, further improving the convenience of processing.

**[0305]** In some embodiments of the present application, as shown in FIGS. 27 to 29, 32, 33 ,35 and 36, the first guide structure 22-1 may be a plate-shaped structure formed on the second body 20 of the burner 100, which is formed by stamping (the plate-shaped structure has four edges; during the stamping process, three connected slits are punched out on the second body 20, and the plate on one side of the slit is bent to form the first guide structure 22-1 with the plate-shaped structure); the first guide structure 22-1 is formed by stamping, which can reduce the amount of material used in the manufacturing process and thus reduce the manufacturing cost. In addition, the first guide structure 22-1, which is a plate-shaped structure, is formed by stamping and forms an integrated structure with the second body 20 of the burner 100, which improves the connection strength between the first guide structure 22-1 and the second body 20. At the same time, the first guide structure 22-1 can be processed synchronously at the same time of processing the second body 20, further improving the convenience of processing.

**[0306]** Further, as shown in FIGS. 27 to 29, 32, 33 ,35 and 36, a second guide structure 24-1 is also formed on the burner 100, and the fire transmission structure 21-1 is communicated with the first guide structure 22-1 through the second guide structure 24-1. In addition, the first guide structure 22-1 is located on the outer side of the flame stabilization structure 23-1 of the burner 100, and the second guide structure 24-1 penetrates the flame stabilization structure 23-1 and is communicated with the fire transmission structure 21-1.

**[0307]** Specifically, the gas inside the accommodation cavity can sequentially pass through the fire transmission structure 21-1, the second guide structure 24-1, and the first guide structure 22-1 before reaching the ignition site 301 of the cooking appliance 1000. The arrangement of the second guide structure 24-1 can further improve the guiding effect on the gas, enabling the gas to effectively reach the ignition site 301, thereby increasing the success rate of ignition.

**[0308]** In some embodiments of the present application, as shown in FIGS. 27 to 29, 32, 33 ,35 and 36, the second guide structure 24-1 can be a guide groove structure formed on the second body 20 of the burner 100, which is formed by stamping. The second guide structure 24-1 is formed by stamping, which can reduce the amount of material used in the manufacturing process and thus reduce the manufacturing cost. In addition, the second guide structure 24-1, which is a guide groove structure, is formed by stamping and forms an integrated structure with the second body 20 of the burner 100, which improves the connection strength between the second guide structure 24-1 and the second body 20. At the same time, the second guide structure can be processed synchronously at the same time of processing the second body 20, further improving the convenience of processing.

**[0309]** As shown in FIGS. 27 to 36, the present application also provides a cooking appliance 1000, which comprises the burner 100 as described above and a body. The body is provided with an ignition site 301 and a cooking chamber 400; the burner 100 is arranged inside the body and located on the outer side of the cooking chamber 400; the fire transmission structure 21-1 of the burner 100 is offset from the ignition site 301 and is arranged to be ignited by the ignition element 200.

**[0310]** Specifically, the burner 100 is installed inside the body of the cooking appliance 1000, and the fire transmission structure 21-1 is offset from the ignition site 301 of the cooking appliance 1000. When it is necessary to ignite the burner 100, the ignition element 200 can be used at the ignition site 301 to ignite the gas sprayed from the fire transmission structure 21-1.

**[0311]** The ignition element 200 ignites the burner 100 through the fire transmission structure 21-1 formed on the burner 100. Compared with the prior art, there is no need to provide a separate ignition barrel, saving materials and assembly processes, and thereby reducing the manufacturing cost. In addition, when the burner 100 is used in the cooking appliance 1000, its fire transmission structure 21-1 is offset from the ignition site 301, reducing the situation where the combustion heat of the burner 100 directly enters the cooking chamber 400 through the ignition site 301, thereby improving the uniformity of heating temperature.

**[0312]** Further, as shown in FIG. 36, the body comprises a receiver 300, which is located at the bottom of the cooking chamber 400 and at the top of the burner 100. The ignition site 301 is an ignition hole formed on the receiver 300. Specifically, by providing the receiver 300 and arranging it at the bottom of the cooking chamber 400, it can facilitate the collection of residue or grease that falls off the food during the cooking process. In

addition, the receiver 300 and the cooking chamber 400 can be set as separable structures for facilitating cleaning the receiver 300. In addition, the ignition hole is formed on the receiver 300, which facilitates the user to ignite the gas through the ignition element 200 during use.

**[0313]** It should be understood that the burner 100 is located below the receiver 300. When the burner 100 is ignited, the flame formed by the combustion of gas heats the bottom of the receiver 300, and the receiver 300 is used to uniformly release heat inside the cooking chamber 400. By arranging the fire transmission structure 21-1 and the fire hole group 30-1 of the burner 100 to be offset from the ignition hole, the situation where the burning flame directly enters the cooking chamber 400 from the ignition hole is avoided, and the temperature unevenness during the heating process is reduced.

**[0314]** As shown in FIGS. 37 to 45, according to some embodiments of the present application, a combustion assembly 1000-1 is provided, which comprises the burner 100. The burner 100 has a first fire hole group 30-11, a second fire hole group 30-12, an accommodation cavity, and a fire transmission structure 21-1.

**[0315]** The accommodation cavity is formed on the burner 100, and when the combustion assembly 1000-1 is used in a gas cooking appliance, a gas pipeline is communicated with the accommodation cavity. The first fire hole group 30-11 and the second fire hole group 30-12 are respectively provided on two opposite sides of the burner 100, and the first fire hole group 30-11 and the second fire hole group 30-12 are respectively communicated with the accommodation cavity. The fire transmission structure 21-1 is arranged on the outer side of the accommodation cavity, and the accommodation cavity is communicated with at least part of the fire transmission structure 21-1. The fire transmission structure 21-1 communicates the first fire hole group 30-11 with the second fire hole group 30-12.

**[0316]** Specifically, as shown in FIGS. 37 and 38, when using the combustion assembly 1000-1 to burn the gas, the ignition element 200 of the combustion assembly 1000-1 ignites the gas sprayed from the fire hole group on one side, and the fire transmission structure 21-1 is used to ignite the gas sprayed from the fire hole group on the other side, so as to use the burner 100 to burn the gas and use the heat of combustion to cook food.

**[0317]** The fire transmission structure 21-1 is formed on the burner 100, and the fire transmission structure 21-1 is used to communicate the first fire hole group 30-11 with the second fire hole group 30-12. Compared with the prior art, there is no need to set a flame stabilization plate or other structures, thus achieving structural simplification and assembly process simplification, and reducing the manufacturing cost of the combustion assembly 1000-1.

**[0318]** It should be understood that the fire transmission structure 21-1 is formed on the burner 100 and can be manufactured by processing the burner 100. Therefore, there is no need to separately set a flame stabilization plate to achieve fire transmission. By reducing the number of components, the material cost can be reduced. At the same time, by reducing the number of components, the assembly processes are reduced, and the assembly materials (such as solder, fasteners, etc.) used in the assembly processes are also saved, thereby reducing the assembly cost.

**[0319]** In addition, the fire transmission structure 21-1 communicates the second fire hole group 30-12 with the first fire hole group 30-11. Regardless of which side of the fire hole group sprays the gas, the gas sprayed from the corresponding side of the fire hole group can be induced to burn through the fire transmission structure 21-1, thereby achieving full combustion of the burner 100, avoiding gas leakage, and ensuring the safety of gas use.

**[0320]** In addition, as shown in FIG. 38 or FIG. 40, after the gas sprayed from the fire hole group on one side of the burner 100 is ignited, the gas sprayed from the fire hole group on the other side cannot be effectively ignited. By communicating at least part of the fire transmission structure 21-1 with the accommodation cavity, the gas can enter the fire transmission structure 21-1. By communicating the fire transmission structure 21-1 with the fire hole group on the ignited side, the gas in the fire transmission structure 21-1 can be induced to burn. The gas sprayed from the fire hole group on the unignited side can be induced to burn by the burning gas in the fire transmission structure 21-1, thereby achieving the fire transmission operation of the burner 100.

**[0321]** It should be pointed out that the first fire hole group 30-11 and the second fire hole group 30-12 are respectively arranged on two opposite sides of the burner 100; at least one first fire hole is comprised in the first fire hole group 30-11, and at least one second fire hole is comprised in the second fire hole group 30-12.

**[0322]** In the embodiment of the present application, the number of first fire holes in the first fire hole group 30-11 is multiple (three or more), all of which are arranged at intervals in a preset direction on the burner 100 (at equal intervals or unequal intervals). Similarly, the number of second fire holes in the second fire hole group 30-12 is multiple (three or more), all of which are also arranged at intervals in the preset direction on the burner 100 (at equal intervals or unequal intervals).

**[0323]** In addition, the preset direction is the length direction of the burner 100 (the direction with the maximum size of the burner 100). By arranging multiple first fire holes in the first fire hole group 30-11 and multiple second fire holes in the second fire hole group 30-12 along the length direction of the burner 100, the number of fire holes on the burner 100 can be increased, thereby enhancing the combustion capacity of burner 100.

**[0324]** In addition, the shape of the first fire hole in the first fire hole group 30-11 can be a circular hole, an elliptical hole, a polygonal hole, or other irregularly shaped holes, while the shape of the second fire hole in the second fire hole group 30-12 can also be a circular hole, an elliptical hole, a polygonal hole, or other irregu-

larly shaped holes. In the embodiment of the present application, the shapes of the first and second fire holes can be adaptively adjusted as needed, which will not be described in detail herein.

**[0325]** Further, it should be understood that as shown in FIGS. 37 to 41, the burner 100 comprises two parts, i.e., a first body 10 and a second body 20. The first body 10 and the second body 20 cooperate to form the burner 100, and the accommodation cavity is formed through the cooperation of the first body 10 and the second body 20.

**[0326]** Specifically, the burner 100 is divided into two parts, and the complete structure of the burner 100 is formed through the cooperation of the two parts, thereby improving the convenience of processing and manufacturing the burner 100 and reducing the manufacturing cost of the burner 100.

**[0327]** It should be pointed out that as shown in FIGS. 41 to 45, the first body 10 is a first plate-shaped member, and the second body 20 is a second plate-shaped member. A first cavity 11 is formed on the first plate-shaped member by stamping, and a second cavity 21 is formed on the second plate-shaped member. After the first body 10 is connected and fixed to the second body 20, the first cavity 11 and the second cavity 21 are interlocked to form the complete accommodation cavity. When the combustion assembly 1000-1 is used in the cooking appliance, the gas pipeline is communicated with the accommodation cavity so that gas can enter the accommodation cavity and cook food through combusting and heating.

**[0328]** In addition, the burner 100 is provided with a gas inlet 101 and an air inlet 102; the gas inlet 101 is used for communication with the gas pipeline, and the air inlet 102 is used for the entry of air into the accommodation cavity. By providing the gas inlet 101 and the air inlet 102, gas and air can be mixed in a preset ratio, thereby meeting the combustion needs of the burner 100.

**[0329]** In the embodiment of the present application, as shown in FIG. 42, the air inlet 102 is provided on the first body 10; as shown in FIGS. 37 and 41, the first body 10 and the second body 20 enclose to form the gas inlet 101.

**[0330]** Meanwhile, in the embodiment of the present application, the burner 100 has a long strip-shaped structure; the air inlet 102 and the gas inlet 101 are located at one end of the long strip-shaped structure, and the position where the accommodation cavity is communicated with the fire transmission structure 21-1 comprises at least the other end of the long strip-shaped structure. Through this arrangement, the accommodation cavity can be filled with gas to ensure the stability of gas output, thereby ensuring the uniformity of flame during the combustion process of the burner 100 and improving the quality of food cooking.

**[0331]** In addition, the first body 10 and the second body 20 can be connected and fixed by welding, screw connection, riveting, or bonding.

**[0332]** In the embodiment of the present application, as shown in FIGS. 38, 40, 43 and 45, the first body 10 and the second body 20 are connected and fixed by riveting. Specifically, a first riveting profile 25-1 is formed on the first body 10 by stamping, and a second riveting profile 25-1 is formed on the second body 20 by stamping. When the first body 10 is matched with the second body 20, the first riveting profile 25-1 and the second riveting profile 25-1 are correspondingly arranged, and the first riveting profile 25-1 and the second riveting profile 25-1 are riveted together by riveting, thereby achieving the connection and fixation between the first body 10 and the second body 20.

**[0333]** As shown in FIG. 43, the first riveting profile 25-1 is a riveting hole (the riveting hole is a concave hole, which can prevent the structure from protruding, avoid scratching assembly personnel or interfering with other components, etc.), and the second riveting profile 25-1 is a riveting head (in other embodiments, the second riveting profile 25-1 can be a riveting hole, and the first riveting profile 25-1 can be a riveting head). The riveting head is inserted into the riveting hole, and the riveting head is deformed using a riveting device to rivet and fix the first body 10 and the second body 20. The riveting method facilitates assembly and has high connection strength and good stability. In addition, there are multiple riveting points between the first body 10 and the second body 20 (the structure formed by riveting and fixing the first riveting profile 25-1 and the second riveting profile 25-1), so as to increase the strength of the connection and fixation between the first body 10 and the second body 20.

**[0334]** In some embodiments of the present application, the first fire hole group 30-11 is formed on the first body 10, and the second fire hole group 30-12 is also formed on the first body 10.

**[0335]** Specifically, the first body 10 is provided with the first fire hole group 30-11 and the second fire hole group 30-12 respectively, which are located on two opposite sides of the first body 10. By arranging both the fire hole groups on the first body 10, it is possible to synchronously process the two fire hole groups at the same time of processing the first body 10, which improves the convenience of processing and reduces the cost of processing and manufacturing.

**[0336]** It should be pointed out that in this embodiment, the first fire hole group 30-11 and the second fire hole group 30-12 are located on two opposite sides of the first body 10. Specifically, in the length direction of the first body 10 (the direction with the maximum size of the first body 10), the first fire hole group 30-11 and the second fire hole group 30-12 are located on two sides of the centerline of the first body 10, and the first fire hole group 30-11 and the second fire hole group 30-12 have a symmetrical structure with respect to the centerline.

**[0337]** In some embodiments of the present application, the first fire hole group 30-11 is formed on the second body 20, and the second fire hole group 30-12 is also formed on the second body 20.

**[0338]** Specifically, the second body 20 is provided with the first fire hole group 30-11 and the second fire hole group 30-12 respectively, which are located on two

opposite sides of the second body 20. By arranging both the fire hole groups on the second body 20, it is possible to synchronously process the two fire hole groups at the same time of processing the second body 20, which improves the convenience of processing and reduces the cost of processing and manufacturing.

**[0339]** It should be pointed out that in this embodiment, the first fire hole group 30-11 and the second fire hole group 30-12 are located on two opposite sides of the second body 20. Specifically, in the length direction of the second body 20 (the direction with the maximum size of the second body 20), the first fire hole group 30-11 and the second fire hole group 30-12 are located on two sides of the centerline of the second body 20, and the first fire hole group 30-11 and the second fire hole group 30-12 have a symmetrical structure with respect to the centerline.

**[0340]** In some embodiments of the present application, one of the first fire hole group 30-11 and the second fire hole group 30-12 is formed on the first body 10, and the other of the first fire hole group 30-11 and the second fire hole group 30-12 is formed on the second body 20.

**[0341]** Specifically, the first body 10 and the second body 20 are respectively provided with the first fire hole group 30-11 and the second fire hole group 30-12, which are located on two opposite sides of the burner 100. By arranging the two fire hole groups on two bodies respectively, it is possible to synchronously process the two fire hole groups at the same time of processing the two bodies, which improves the convenience of processing and reduces the cost of processing and manufacturing.

**[0342]** In some embodiments of the present application, as shown in FIGS. 37 to 45, after the first body 10 and the second body 20 are matched with each other, there are connection positions between them, and the first fire hole group 30-11 and the second fire hole group 30-12 are formed at the connection positions respectively.

**[0343]** Specifically, the first body 10 is a first plate-shaped member, and the second body 20 is a second plate-shaped member. A fire hole profile 12-1 is formed on one of the first body 10 and the second body 20 (the fire hole profile 12-1 is a protruding structure formed toward the second body 20 and processed by stamping), and the other of the first body 10 and the second body 20 has a flat plate structure. When the first body 10 and the second body 20 are matched with each other, the fire hole profile 12-1 is pressed against the flat plate structure. The gaps between the first body 10 and the second body 20 on both sides of the fire hole profile 12-1 form fire holes of the fire hole groups. The structure in this embodiment is easy to process during the manufacturing process, effectively improving processing convenience, and further reducing the manufacturing cost.

**[0344]** It should be pointed out that in this embodiment, as shown in FIGS. 40 and 42, the fire hole profile 12-1 is formed on the first body 10, and the number of fire hole profile 12-1 is multiple; all the fire hole profiles 12-1 are divided into two parts, with one part constituting the first fire hole group 30-11, and the other part constituting the second fire hole group 30-12. After the first body 10 is assembled with the second body 20, the first fire hole group 30-11 and the second fire hole group 30-12 are formed synchronously without the need for separate welding or other operations.

**[0345]** Further, in the embodiment of the present application, the fire transmission structure 21-1 can be arranged on the first body 10, or the fire transmission structure 21-1 can also be arranged on the second body 20.

**[0346]** Specifically, by arranging the fire transmission structure 21-1 on the second body 20 or the first body 10, the convenience of arranging the fire transmission structure 21-1 is improved, which can meet the fire transmission requirements of different burners 100 and effectively meet the combustion needs of the burners 100.

**[0347]** Further, the first body 10 and the second body 20 are arranged up and down, with the second body 20 located at the bottom and the first body 10 located at the top. The fire transmission structure 21-1 is arranged on the second body 20. At the same time, the fire transmission structure 21-1 is arranged in the extension direction of the connection positions between the first body 10 and the second body 20.

**[0348]** Specifically, the top size of the second body 20 is larger than the bottom size of the first body 10. When the first body 10 is fixed at the top of the second body 20, the part of the second body 20 that is located outside the first body 10 has residual structure. The fire transmission structure 21-1 is formed on the residual structure of the second body 20 and is arranged around the connection positions between the first body 10 and the second body 20.

**[0349]** In an example, the gas sprayed from the first fire hole group 30-11 is ignited, and the gas sprayed from the second fire hole group 30-12 is induced to burn; when the burner 100 is burning, the gas is sprayed from the first fire hole group 30-11, and the ignition element 200 of the combustion assembly 1000-1 ignites the sprayed gas. The flame formed by the combustion of gas flows along the fire transmission structure 21-1 and is transmitted through the fire transmission structure to the position of the second fire hole group 30-12, thereby inducing the gas sprayed from the second fire hole group 30-12 to burn and achieving full combustion of the burner 100.

**[0350]** Through the above arrangement of the fire transmission structure 21-1, effective fire transmission between the first fire hole group 30-11 and the second fire hole group 30-12 is ensured, thereby ensuring sufficient combustion of the burner 100.

**[0351]** It should be understood that by arranging the fire transmission structure 21-1 on the second body 20, when the user is using the cooking appliance, the user can observe the fire transmission process from top to bottom, achieving explicit fire transmission.

**[0352]** Further, as shown in FIGS. 37 to 40, the fire transmission structure 21-1 comprises a first burning-

induction section 21-12, a fire transmission section 21-11, and a second burning-induction section 21-13 that are connected in sequence. The first fire hole group 30-11 is arranged corresponding to the first burning-induction section 21-12, the second fire hole group 30-12 is arranged corresponding to the second burning-induction section 21-13, the fire transmission section 21-11 communicates the first burning-induction section 21-12 with the second burning-induction section 21-13, and the accommodation cavity is communicated with the fire transmission section 21-11.

**[0353]** Specifically, the ignition element 200 in the combustion assembly 1000-1 is usually located at a certain position of the fire hole group, for example, at the end of the first fire hole group 30-11 that is away from the fire transmission section 21-11. When the ignition element 200 ignites the gas sprayed from the fire hole near it, the first burning-induction section 21-12 is used to ignite all the first fire hole group 30-11. When the flame reaches the fire transmission section 21-11 along the first burning-induction section 21-12, the gas in the accommodation cavity that enters the fire transmission section 21-11 is induced to burn, and the flame continues to flow along the fire transmission section 21-11. When the flame flows to the fire transmission section 21-11 and the second burning-induction section 21-13, it will induce the gas sprayed from the second fire hole group 30-12 to burn, and the gas sprayed from all the second fire hole group 30-12 is all induced to burn through the flow of the flame along the second burning-induction section 21-13.

**[0354]** Through the cooperation of two burning-induction sections and the fire transmission section 21-11, the effective induced burning of the burner 100 is achieved, thereby ensuring the full combustion of the burner 100.

**[0355]** It should be pointed out that in the embodiment of the present application, the first burning-induction section 21-12 and the second burning-induction section 21-13 are arranged in parallel and spaced apart, and the fire transmission section 21-11 connects one end of the first burning-induction section 21-12 with one end of the second burning-induction section 21-13, so that during the combustion process of the burner 100, the first fire hole group 30-11 and the second fire hole group 30-12 can be fully ignited, thereby ensuring the combustion effect of the burner 100.

**[0356]** In addition, the first burning-induction section 21-12 can be formed by a first flanging of the second body 20, and the first flanging is spaced apart from the first body 10 (the first body 10 has the position of the first fire hole group 30-11), thereby forming a first channel, which is the first burning-induction section 21-12.

**[0357]** Similarly, the second burning-induction section 21-13 can also be formed by a second flanging of the second body 20, and the second flanging is spaced apart from the first body 10 (the first body 10 has the position of the second fire hole group 30-12), thereby forming a second channel, which is the second burning-induction section 21-13.

**[0358]** Further, as shown in FIGS. 37 to 40, the extension direction of the first fire hole group 30-11 is consistent with that of the first burning-induction section 21-12. Specifically, by setting the extension directions of the first fire hole group 30-11 and the first burning-induction section 21-12 to be consistent, the burning-induction path can be shortened, achieving rapid induced burning of the gas sprayed from the first fire hole group 30-11.

**[0359]** Further, as shown in FIGS. 37 to 40, the extension direction of the second fire hole group 30-12 is consistent with that of the second burning-induction section 21-13. Specifically, by setting the extension directions of the second fire hole group 30-12 and the second burning-induction section 21-13 to be consistent, the burning-induction path can be shortened, achieving rapid induced burning of the gas sprayed from the second fire hole group 32-1.

**[0360]** Further, the fire transmission section 21-11 is communicated with the accommodation cavity of the burner 100 through a communication structure, which is a communication hole group. Specifically, a communication hole group is provided to achieve effective communication between the accommodation cavity and the fire transmission section 21-11, so that the gas in the accommodation cavity can enter the fire transmission section 21-11, and then the fire transmission section 21-11 is used to achieve the fire transmission operation on the two fire hole groups, so that the burner 100 can burn fully.

**[0361]** It should be pointed out that the communication hole group comprises at least one communication hole. In the embodiment of the present application, the communication hole group comprises multiple (three or more) communication holes, and all the communication holes are spaced apart in the extension direction of the fire transmission section 21-11. By setting multiple communication holes, the amount of gas entering the fire transmission section 21-11 is increased, ensuring the effect of fire transmission and effectively ensuring the effective fire transmission of the first fire hole group 30-11 and the second fire hole group 30-12.

**[0362]** In addition, in the embodiment of the present application, as shown in FIGS. 44 and 45, multiple split fire profiles 26-1 are formed on the second body 20 (which are formed by protruding toward the first body 10), and the positions on the first body 10 that correspond to the second body 20 are flat plate structures. When the first body 10 and the second body 20 are connected and fixed, the communication holes are located on both sides of the split fire profiles 26-1. The split fire profiles 26-1 are manufactured by stamping, which can reduce the manufacturing cost, make the structure of the combustion assembly 1000-1 simpler, and lower the manufacturing cost.

**[0363]** It should be understood that the split fire profile 26-1 can also be formed on the first body 10, and the structure of the split fire profile 26-1 formed on the first body 10 is opposite to the structure of the split fire profile

26-1 formed on the second body 20. For details, reference may be made to the structure of the split fire profile 26-1 formed on the second body 20.

**[0364]** Further, as shown in FIGS. 38, 40, 44 and 45, a flame stabilization structure 23-1 are also provided on the burner 100. The flame stabilization structure 23-1 is located on the outer side of the communication hole group and is spaced apart from the communication hole group; the fire transmission section 21-11 is formed between the flame stabilization structure 23-1 and the communication hole group.

**[0365]** Specifically, by setting the flame stabilization structure 23-1, the fire transmission section 21-11 forms a channel like structure. When the fire transmission operation is performed, it can be ensured that the flame effectively flows along the fire transmission section 21-11, thereby ensuring the effect of fire transmission.

**[0366]** It should be pointed out that a fire transmission profile 17 is provided on the first body 10, which is formed on the first body 10 by stamping. After the first body 10 is connected and fixed to the second body 20, the fire transmission profile 17 is located above the fire transmission section 21-11 (the fire transmission profile 17 is spaced apart from the flame stabilization structure 23-1). By setting the fire transmission profile 17, the external influence on the fire transmission process is further avoided, and the fire transmission effect is further improved.

**[0367]** Further, as shown in FIGS. 37, 39 and 45, the combustion assembly 1000-1 also comprises an ignition element 200 and a flame detection element 500. The ignition element 200 and the flame detection element 500 are respectively connected to the burner 100. The flame detection element 500 is arranged corresponding to one of the first fire hole group 30-11 and the second fire hole group 30-12, and the ignition element 200 is arranged corresponding to the other of the first fire hole group 30-11 and the second fire hole group 30-12.

**[0368]** By setting the ignition element 200, the gas is ignited using the ignition element 200. By setting the flame detection element 500, the position of the flame is detected, thereby achieving the detection of the combustion effect of the burner.

**[0369]** In addition, the ignition element 200 and the flame detection element 500 are installed and fixed on the burner 100 through an installation bracket 600, and the ignition element 200 and the flame detection element 500 are located at one end of the burner body that is away from the fire transmission section 21-11 of the fire transmission structure 21-1. The ignition element 200 is used to ignite the fire hole group on one side, and the flame detection element 500 is used to detect whether the fire hole group on the other side is induced to burn, so as to ensure that the burner 100 can burn fully.

**[0370]** It should be pointed out that the ignition element 200 is an ignition needle, and the flame detection element 500 is a flame sensor.

**[0371]** As shown in FIGS. 46 to 63, according to some embodiments of the present application, a burner 100 is provided, which comprises two bodies, i.e., a first body 10 and a second body 20.

**[0372]** The first body 10 and the second body 20 are connected to each other through a first connection structure 30. The first body 10 and the second body 20 enclose to form an accommodation cavity 80 and fire holes 40 between them. A gas pipeline can be communicated with the accommodation cavity 80; the number of fire holes 40 is multiple, and the fire holes 40 are communicated with the accommodation cavity 80 respectively. The gas in the accommodation cavity 80 can be sprayed out through the fire holes 4.

**[0373]** The number of the first connection structure 30 is at least one, and the position of the first connection structure 30 is spaced apart from the edge of the burner 100. At the position where the first connection structure 30 is located, the fire hole 40 is blocked by the first connection structure 30, that is, the fire hole 40 cannot be communicated with the accommodation cavity 80.

**[0374]** As shown in FIGS. 48 and 52, the burner 100 has communication channels 90 arranged between the first body 10 and the second body 20, and each first connection structure 30 is correspondingly provided with a communication channel 90. The communication channel 90 communicates the blocked fire hole 40 with at least one adjacent fire hole 40.

**[0375]** Specifically, the first body 10 and the second body 20 are connected and fixed to each other through the first connection structure 30; the fire holes 40 and the accommodation cavity 80 are formed between the first body 10 and the second body 20. The gas in the gas pipeline enters the accommodation cavity 80 and can be sprayed out through the fire holes 40, and the combustion of the burner 100 is achieved by ignition.

**[0376]** As shown in FIG. 48, the position of the first connection structure 30 is spaced apart from the edge of the burner 100, and blocks the communication between the fire hole 40 and the accommodation cavity 80. The communication channel 90 communicates the blocked fire hole 40 with at least one adjacent fire hole 40, so that gas can enter the blocked fire hole 40 and can be ignited after being sprayed from the blocked fire hole 40, thereby avoiding the problem of poor fire transmission at the riveting position.

**[0377]** It should be understood that when the burner 100 is burning, the gas is sprayed from the fire hole 40 and ignited to form a flame. The temperature at the position of the fire hole 40 is relatively high, and under the high temperature condition, the burner 100 is prone to deformation at the position of the fire hole 40 when it is used for a long time. The first connection structure 30 is used to connect and fix the first body 10 and the second body 20. By setting the first connection structure 30 to be spaced apart from the edge of the burner 100 and block the communication between the fire hole 40 and the accommodation cavity 80, the position where the first connection structure 30 is located can be set close to the

position of the fire hole 40, and the strength at the position of the fire hole 40 can be enhanced by the first connection structure 30 to reduce the deformation of the fire hole 40 caused by high temperature, thereby reducing the difficulty of fire transmission, and the problems of backfire or flame lifting in the burner 100.

**[0378]** In addition, multiple fire holes 40 are arranged in a spaced-apart manner on the burner 100, and at least one side of the blocked fire hole 40 is provided with an unblocked fire hole 40. The communication channel 90 communicates the blocked fire hole 40 with the unblocked fire hole 40. When the gas is sprayed out through the unblocked fire hole 40, it can enter the interior of the blocked fire hole 40 (the side of the first connection structure 30 that is away from the accommodation cavity 80) through the communication channel 90 and can be sprayed out through the blocked fire hole 40, thereby avoiding problems such as gas interruption at the position of the blocked fire hole 40 (which would otherwise cause poor fire transmission), thereby ensuring the stable and efficient operation of the burner 100.

**[0379]** It should be pointed out that as shown in FIGS. 46, 49 and 51, the burner 100 is provided with an air inlet 102 and a gas inlet 101 that are communicated with the accommodation cavity 80. The gas inlet 101 is used for communication with the gas pipeline, and the air inlet 102 is used for the entry of air. The gas in the gas pipeline and the air enter the accommodation cavity 80 through the gas inlet 101 and the air inlet 102 respectively according to a preset ratio, so that the gas entering the accommodation cavity 80 forms a mixed gas to meet the needs of gas combustion.

**[0380]** The shape of the burner 100 can be a square structure or a strip-shaped structure. In the embodiment of the present application, the burner 100 is a strip-shaped structure.

**[0381]** Further, as shown in FIGS. 52 to 56, the first body 10 has a first plate 16 and a first cavity 11. The first plate 16 is arranged on the outer side of an opening of the first cavity 11 and is arranged in a circumferential direction. The second body 20 has a second plate 25 and a second cavity 21. The second plate 25 is arranged on the outer side of an opening of the second cavity 21 and is arranged in a circumferential direction. A fire hole construction cavity 12 is provided on one of the second body 20 and the first body 10, and a channel construction cavity 24-2 is provided on the other of the second body 20 and the first body 10.

**[0382]** After the first body 10 and the second body 20 are connected and fixed by at least one connection structure, the first cavity 11 and the second cavity 21 are interlocked to form the structure of the accommodation cavity 80, and the fire hole construction cavity 12 abuts against the corresponding plate and they enclose to form multiple fire holes 40. The channel construction cavity abuts against the fire hole construction cavity 12 and they enclose to form the communication channel 90.

**[0383]** In the embodiment of the present application, the first body 10 has the fire hole construction cavity 12, the first plate 16, and the first cavity 11. The fire hole construction cavity 12, the first plate 16 and the first cavity 11 are subjected to integrated processing, which can reduce processing steps, improve processing convenience, and reduce the manufacturing cost. The second body 20 has the channel construction cavity 24-2, the second plate 25, and the second cavity 21. The channel construction cavity 24-2, the second plate 25 and the second cavity 21 are subjected to integrated processing, which can also reduce processing steps, improve processing convenience, and reduce the manufacturing cost.

**[0384]** It should be understood that a side of the first cavity 11 that faces the second body 20 has an opening, and the first plate 16 is located on the outer side of the opening of the first cavity 11 and is arranged in a circumferential direction of the opening of the first cavity 11. The first plate 16 can be regarded as a flanging formed at the position of the opening of the first cavity 11, and the size of the flanging can meet the need of setting the fire hole construction cavity 12. At the same time, the fire hole construction cavity 12 is formed on the first plate 16, and the fire hole construction cavity 12 is a corrugated structure. The first body 10 and the second body 20 are arranged up and down, and the first body 10 is fixed at the top of the second body 20 through the first connection structure 30. Valley positions of the fire hole construction cavity 12 with the corrugated structure are pressed against the top of the second plate 25, and multiple fire holes 40 are formed between the fire hole construction cavity 12 with the corrugated structure and the second plate 25.

**[0385]** At the same time, a side of the second cavity 21 that faces the first body 10 has an opening, and the second plate 25 is located on the outer side of the opening of the second cavity 21 and is arranged in a circumferential direction of the opening of the second cavity 21. The second plate 25 can be regarded as a flanging formed at the position of the opening of the second cavity 21, and the size of the flanging can meet the need of setting the channel construction cavity 24-2. At the same time, the channel construction cavity 24-2 is formed on the second plate 20, and a side of the channel construction cavity 24-2 that faces the first plate 16 has an opening. The first body 10 and the second body 20 are arranged up and down. The first body 10 is fixed at the top of the second body 20 through the first connection structure 30, and the opening of the first cavity 11 and the opening of the second cavity 21 are interlocked to form the accommodation cavity 80. Valley positions of the fire hole construction cavity 12 with the corrugated structure are pressed against the top of the second plate 25, and multiple fire holes 40 are formed between the fire hole construction cavity 12 with the corrugated structure and the second plate 25. The channel construction cavity 24-2 are pressed against the valley positions of the fire hole construction cavity 12 with the corrugated structure,

forming the communication channel 90. The channel construction cavity 24-2 spans at least two waveforms of two adjacent corrugated structures, thereby achieving communication between the blocked fire hole 40 and adjacent fire holes 40.

**[0386]** It should be pointed out that the first body 10 can be a sheet metal stamped part or a casting part; similarly, the second body 20 can be a sheet metal stamped part or a casting part.

**[0387]** In the embodiment of the present application, the first body 10 is a first sheet metal part, and the second body 20 is a second sheet metal part. The first sheet metal part is a plate-shaped structure, and it is formed with the first cavity 11, the first plate 16, and the fire hole construction cavity 12 (fire hole profile 12) by stamping. The fire hole construction cavity 12 is located on the outer side of the first cavity 11 and is communicated with the first cavity 11. The second sheet metal part is also a plate-shaped structure, and it is formed with the second cavity 21, the second plate 25 and the channel construction cavity 24-2 (channel profile) by stamping. When the first body 10 is connected and fixed to the second body 20, the first body 10 abuts against the second body 20, and the first cavity 11 and the second cavity 21 are interlocked to form the accommodation cavity 80. The part of the second body 20 that is located on the outer side of the second cavity 21 is the second plate 25; the second plate 25 abuts against the fire hole construction cavity 12 and they enclose to form the fire holes 40, and the channel construction cavity 24-2 abuts against the fire hole construction cavity 12 and they enclose to form the communication channel 90. The structure of the burner 100 is simple and easy to process and manufacture, effectively reducing the manufacturing cost.

**[0388]** The first cavity 11 is formed by arching the first body 10 toward the side away from the second body 20, and the second cavity 21 is formed by arching the second body 20 toward the side away from the first body 10. After the two cavities are interlocked, they can form the accommodation cavity 80 that is an approximately cylindrical structure. The gas inlet 101 and the air inlet 102 are located at one end of the cylindrical structure, and the first cavity 11 and the second cavity 21 enclose to form the gas inlet 101. There are two air inlets 102, one is provided on the first body 10 and the other is provided on the second body 20, with the two air inlets 102 facing each other. Setting the air inlets 102 and the gas inlet 101 at one end of the accommodation cavity 80 with the cylindrical structure can increase the flow path of gas and air in the accommodation cavity 80, so that gas and air can be fully mixed, thereby improving the combustion efficiency of gas. At the same time, two air inlets 102 are provided, which can increase the amount of air entry, further ensuring that the gas can be fully combusted and improving the combustion efficiency of the gas.

**[0389]** In addition, as shown in FIGS. 53, 54 and 56, the first cavity 11 comprises a first expansion section, a first contraction section, and a second expansion section, while the second cavity 21 comprises a third expansion section, a second contraction section, and a fourth expansion section. When the first body 10 and the second body 20 are matched with each other, the first expansion section and the third expansion section are interlocked to form a first expansion channel, the first contraction section and the second contraction section are interlocked to form a contraction channel, and the second expansion section and the fourth expansion section are interlocked to form a second expansion channel. The first expansion channel and the second expansion channel are communicated with two opposite sides of the contraction channel to form the structure of the accommodation cavity 80. The first expansion channel is communicated with the gas inlet 101 and the air inlets 102 respectively, and the second expansion channel is communicated with the fire holes 40 respectively. The first expansion channel, the contraction channel, and the second expansion channel form a structure of a Venturi tube, which uses the contraction channel to compress the mixture of gas and air, thereby increasing the flow velocity of gas and air and effectively compensating for the kinetic energy loss during the flow process.

**[0390]** It should be pointed out that the fire hole construction cavity 12 and the channel construction cavity 24-2 may also be implemented in various ways. For example, the fire hole construction cavity 12 is formed on the second plate 25, and the channel construction cavity 24-2 is formed on the first plate 16; for example, the fire hole construction cavity 12 and the channel construction cavity 24-2 are both formed on the first plate 16; for example, the fire hole construction cavity 12 and the channel construction cavity 24-2 are both formed on the second plate 25.

**[0391]** In some embodiments of the present application, as shown in FIGS. 58 and 59, the channel construction cavity 24-2 is "-" shaped, and the communication channel 90 constructed by the channel construction cavity 24-2 is a "-" shaped communication channel 90. The "-" shaped communication channel 90 spans at least two adjacent fire holes 40, one of which is the blocked fire hole 40 (the fire hole 40 blocked by the first connection structure 30), and the other of which is the unblocked fire hole 40, so that the gas in the unblocked fire hole 40 can enter the blocked fire hole 40 through the communication channel 90, and the blocked fire hole 40 can burn normally.

**[0392]** It should be understood that the structure of the "-" shaped channel construction cavity 24-2 is simple, easy to process, and can effectively reduce the manufacturing cost.

**[0393]** It should be pointed out that the "-" shaped communication channel 90 is set at a preset angle with the flow direction of gas in the fire hole 40, which is larger than 0° and smaller than 180°, so as to ensure that the communication channel 90 communicates adjacent fire holes 40 and guides the gas in the unblocked fire hole 40 into the blocked fire hole 40, thereby achieving normal

combustion of the blocked fire hole 40.

**[0394]** In some embodiments of the present application, as shown in FIGS. 56 and 57, the channel construction cavity 24-2 is U-shaped, and the communication channel 90 constructed by the channel construction cavity 24-2 is a U-shaped communication channel 90. The U-shaped communication channel 90 spans three adjacent fire holes 40, with the fire hole 40 in the middle position being the blocked fire hole 40 (the fire hole 40 blocked by the first connection structure 30), and the fire holes 40 on two adjacent sides of the blocked fire hole 40 being the unblocked fire holes 40. The U-shaped communication channel 90 enables the unblocked fire holes 40 on both sides to simultaneously provide gas to the blocked fire hole 40, further ensuring that the blocked fire hole 40 can receive sufficient gas supply to ensure normal combustion of the blocked fire hole 40.

**[0395]** It should be pointed out that the communication position between the blocked fire hole 40 and the U-shaped communication channel 90 is located at the bottom of the U-shaped communication channel 90, and the two adjacent fire holes 40 that are not blocked are respectively communicated with two ends of the U-shaped communication channel 90.

**[0396]** In some embodiments of the present application, as shown in FIGS. 61 to 63, the channel construction cavity 24-2 is J-shaped, and the communication channel 90 constructed by the channel construction cavity 24-2 is a J-shaped communication channel 90. The J-shaped communication channel 90 spans two adjacent fire holes 40, one of which is the blocked fire hole 40 (the fire hole 40 blocked by the first connection structure 30), and the other of which is the unblocked fire hole 40, so that the gas in the unblocked fire hole 40 can enter the blocked fire hole 40 through the communication channel 90, and the blocked fire hole 40 can burn normally.

**[0397]** It should be pointed out that the blocked fire hole 40 is communicated with one end of the J-shaped communication channel 90, while the unblocked fire hole 40 is communicated with the other end of the J-shaped communication channel 90.

**[0398]** In addition, in the communication channel 90 of the J-shaped structure, the J-shaped structure can be a positive J-shaped structure (as shown in FIGS. 60 and 61), or an inverted J-shaped structure (i.e., the shape obtained by turning over the positive J-shaped structure by 180° horizontally, as shown in FIGS. 62 and 63). By using different J-shaped structures, it is possible to achieve the communication between the blocked fire hole 40 and the unblocked fire holes 40 on different sides.

**[0399]** In some embodiments of the present application, as shown in FIG. 46, the number of the fire holes 40 on the burner 100 is multiple, and the multiple fire holes 40 are distributed on both sides on the burner 100, comprising a first fire hole side and a second fire hole side, which are arranged on two opposite sides of the burner 100.

**[0400]** Specifically, as shown in FIG. 46, in the embodiment of the present application, the burner 100 has an approximately cylindrical structure, and the first fire hole side and the second fire hole side are located on two axial sides of the cylindrical structure respectively. The first fire hole side and the second fire hole side are both arranged in the extension direction of the cylindrical structure. Through the arrangement of the fire holes 40 of the burner 100, the combustion positions of the burner 100 can be increased, and the combustion capacity of the burner 100 can be enhanced. When the burner 100 is used in a cooking appliance, it can improve the cooking appliance's ability to process food.

**[0401]** In the embodiment of the present application, as shown in FIG. 46, the burner 100 has multiple first connection structures 30, and any two adjacent first connection structures 30 are spaced apart from each other. The multiple first connection structures 30 comprise two parts, i.e., a first part and a second part. The first part is located on the first fire hole side and corresponds to the first fire hole side, and the second part is located on the second fire hole side and corresponds to the second fire hole side. By dividing the multiple first connection structures 30 into two parts, with each part corresponding to one fire hole side, the connection strength at the positions of the fire holes 40 is further ensured to reduce the deformation of the fire holes 40 due to high temperature during the use of the burner 100, thereby avoiding adverse effects on the burner 100 caused by deformation of the fire holes 40 (such as difficulty in fire transmission, backfire, or flame lifting).

**[0402]** It should be understood that all the first connection structures 30 in the first part are spaced apart (in the embodiment of the present application, they are spaced apart at equal intervals), and at the same time, the first connection structures 30 in the second part are also spaced apart (in the embodiment of the present application, they are spaced apart at equal intervals). By arranging the multiple first connection structures 30 such that they are dispersed on the burner 100, the connection positions between the first body 10 and the second body 20 are increased, further enhancing the connection strength between the first body 10 and the second body 20, and reducing the problem of deformation caused by stress concentration.

**[0403]** Further, as shown in FIG. 46, the number of the first connection structures 30 is multiple, and the first connection structures 30 are allocated into equal numbers of first and second parts. The first part is arranged corresponding to the first fire hole side of the fire holes 40, and the second part is arranged corresponding to the second fire hole side of the fire holes 40. The first connection structures 30 located in the first part and the first connection structures 30 located in the second part are arranged in a one-to-one correspondence.

**[0404]** Specifically, in the embodiment of the present application, the burner 100 has an approximately cylindrical structure. The first fire hole side and the second fire hole side of the fire holes 40 both extend in the axial

direction of the cylindrical structure, and are symmetrically arranged with respect to the axial direction of the cylindrical structure. The first part of the multiple first connection structures 30 are arranged corresponding to the first fire hole side, and the second part of the multiple first connection structures 30 are arranged corresponding to the second fire hole side. By setting the number of first connection structures 30 in the first part to be consistent with the number of first connection structures 30 in the second part and arranging them in a one-to-one correspondence, the strengths of the connection structures on two opposite sides of the burner 100 can be made the same, further ensuring the strength and stability of the overall structure of the burner 100.

**[0405]** Further, as shown in FIG. 51, the multiple fire holes 40 are configured into two fire hole sides, i.e., the first fire hole side and the second fire hole side. Both the first fire hole side and the second fire hole side are arranged in the axial direction of the burner 100 with the approximately cylindrical structure. The first fire hole side and the second fire hole side are axisymmetric with respect to the cylindrical structure; the first part of the multiple first connection structures 30 are arranged corresponding to the first fire hole side, while the second part of the multiple first connection structures 30 are arranged corresponding to the second fire hole side.

**[0406]** The number of fire holes 40 comprised in the first fire hole side is the same as the number of fire holes 40 comprised in the second fire hole side, and they are arranged in a one-to-one correspondence, so that the amounts of flame generated on two opposite sides of the burner 100 are the same, enabling the burner 100 to evenly release heat to the outside. When the burner 100 is used in a cooking appliance, it ensures the cooking effect of the burner 100 on food.

**[0407]** Further, as shown in FIGS. 46 and 51, the arrangement position of the first connection structure 30 on the burner 100 is spaced apart from the edge of the burner 100. The multiple fire holes 40 comprise multiple main fire holes 41 and multiple auxiliary fire holes 42. The multiple main fire holes 41 are spaced apart on the burner 100, and one auxiliary fire hole 42 is provided between two adjacent main fire holes 41. At the position where the first connection structure 30 is located, the auxiliary fire hole 42 is blocked by the first connection structure 30.

**[0408]** Specifically, during the use of the burner 100, the gas in the accommodation cavity 80 is sprayed out through the main fire holes 41 and the auxiliary fire holes 42 respectively, and the sprayed gas is ignited to produce flames, thereby providing heat for the cooking process. The flow cross section of the main fire hole 41 is larger than that of the auxiliary fire hole 42, and the auxiliary fire hole 42 is arranged between two adjacent main fire holes 41 (the distances between the auxiliary fire hole 42 and two adjacent main fire holes 41 can be equal or unequal; in this embodiment, the distances between the auxiliary fire hole 42 and two adjacent main fire holes 41 are equal to ensure better fire transmission effect between two adjacent main fire holes 41). The auxiliary fire hole 42 can perform fire transmission operation on two adjacent main fire holes 41 to ensure that the burner 100 can burn fully.

**[0409]** The position where the first connection structure 30 is located blocks the auxiliary fire hole 42, so that the first connection structure 30 is located near the fire hole 40 to improve the connection strength at the position of the fire hole 40, further reducing the deformation of the fire hole 40 caused by high combustion temperature, and enabling the stable and safe operation of the burner 100.

**[0410]** It should be understood that at the position where the first connection structure 30 is located, if the main fire hole 41 is blocked by the first connection structure, it can easily cause flameout of the burner 100 at this time. Therefore, at the position where the first connection structure 30 is located, the first connection structure 30 is arranged to block the auxiliary fire hole 42, thereby reducing the influence of the first connection structure 30 on the combustion process and ensuring the stable and efficient operation of the burner 100.

**[0411]** It should be pointed out that at the position where the first connection structure 30 is located, the first connection structure 30 blocks one auxiliary fire hole 42. In order to ensure that the blocked auxiliary fire hole 42 can function, the communication channel 90 communicates the blocked auxiliary fire hole 42 with at least one adjacent main fire hole 41 to ensure that the blocked fire hole 40 can obtain gas to meet the combustion needs of the blocked fire hole 40.

**[0412]** In addition, the first fire hole side and the second fire hole side are respectively arranged on two opposite sides of the burner 100. In order to achieve fire transmission between the two fire hole sides, a fire transmission structure is also provided on the burner 100, and the fire transmission structure is communicated with the interior of the accommodation cavity 80. The gas in the accommodation cavity 80 is sprayed out through the fire transmission structure and ignited, so that the two fire hole sides can be induced to burn to achieve the overall combustion of the burner 100.

**[0413]** In addition, the fire transmission structure is arranged at the top of the burner 100, and users can observe the fire transmission situation of the burner 100 through the fire transmission structure, thereby improving the user experience during use.

**[0414]** Further, as shown in FIGS. 47 and 48, before the auxiliary fire hole 42 is blocked, it has a communication position with the accommodation cavity 80, and the position where the first connection structure 30 is located is at this communication position. Specifically, the position where the first connection structure 30 is located is the root of the auxiliary fire hole 42 (the communication position between the auxiliary fire hole 42 and the accommodation cavity 80). By setting the first connection structure 30 at the root of the auxiliary fire hole 42 and using the first connection structure 30 to connect and fix

the first body 10 and the second body 20, the positional relationship between the first connection structure 30, the fire holes 40, and the accommodation cavity 80 can be also taken into consideration, so that the position where the first connection structure 30 is located not only enhances the strength at the position of the fire hole 40, but also increases the strength at the position of the accommodation cavity 80, thereby improving the overall structural strength of the burner 100 and ensuring its stable and safe use.

**[0415]** It should be understood that setting the first connection structure 30 at the root of the auxiliary fire hole 42 (the communication position between the auxiliary fire hole 42 and the accommodation cavity 80) can reduce the adverse effect of the first connection structure 30 on the accommodation cavity 80 and ensure the smooth flow of gas inside the accommodation cavity 80.

**[0416]** In some examples of this embodiment, as shown in FIG. 53, the first connection structure 30 comprises a first connection part 13 and a second connection part 22. The first connection part 13 is arranged on the first body 10, and the second connection part 22 is arranged on the second body 20. One of the second connection part 22 and the first connection part 13 is a protruding structure, and the other of the second connection part 22 and the first connection part 13 is a hole structure. After the protruding structure passes through the hole structure, they are riveted and fitted, thereby connecting and fixing the first body 10 and the second body 20.

**[0417]** Specifically, in this example, the second connection part 22 is the protruding structure, and the first connection part 13 is the hole structure. When the first body 10 is connected and fixed to the second body 20, the first body 10 abuts against the second body 20, the protruding structure passes through the hole structure, and the part of the protruding structure that passes out of the hole structure is riveted using riveting. The riveting fixation has a simple structure which is easy to process. In addition, the riveting structure has high strength and good stability, which can further increase the strength of the fire hole 40 and further reduce the deformation of the fire hole 40 caused by high temperature.

**[0418]** It should be pointed out that the protruding structure is formed on the second body 20. The protruding structure can form an integrated structure with the second body 20, or it is a separate structure from the second body 20 (they are connected and fixed by welding or bonding).

**[0419]** Further, in this example, the protruding structure is formed on the second plate 25, and the protruding structure is a flanging hole with a flanging in the thickness direction of the second body 20.

**[0420]** When the first plate 16 is connected and fixed to the second plate 25, the first plate 16 is pressed against the top of the second plate 25. The flanging of the flanging hole passes through the hole structure on the first body 10, and the part of the flanging that passes out of the hole structure can be flattened using a riveting device. The structure of the flanging hole is simple and can be processed and manufactured by stamping, that is, the structure of the second body 20 itself is utilized to form a corresponding connection structure, thereby saving connecting components and reducing the manufacturing cost of the product.

**[0421]** It should be pointed out that the height of the flanging is larger than the depth of the hole structure to ensure that the flanging can pass out of the flanging hole to effectively achieve riveting fixation.

**[0422]** In addition, in this example, the hole structure of the first connection part 13 is a circular hole, and the flanging hole is also a circular hole, which is flangingd into a cylindrical structure. The outer diameter of the cylindrical structure is smaller than the diameter of the hole structure to ensure that the flanging can smoothly pass through the hole structure, so that the installation process of the first body 10 and the second body 20 can be smoothly implemented.

**[0423]** Further, as shown in FIG. 55, the first connection part 13 is formed on the first body 10 and configured as a hole structure, and the second connection part 22 is formed on the second body 20 and configured as a flanging hole structure. An avoidance structure 15 is also provided on the first body 10. The avoidance structure 15 is located radially outside the hole structure and is arranged around the circumference of the hole.

**[0424]** When the first body 10 is connected and fixed to the second body 20, the first body 10 is pressed against the top of the second body 20, and the flanging of the flanging hole passes through the hole structure on the first body 10. The part of the flanging that passes out of the hole structure is flattened using a riveting device, so that it is pressed against the avoidance structure 15, thereby forming the first connection structure 30 (the structure formed by riveting the hole structure and the flanging of the flanging hole), thus connecting and fixing the first body 10 and the second body 20.

**[0425]** It should be understood that in the present application, the fire hole construction cavity 12, which is the fire hole profile 12, is formed on the first body 10; the first connection part 13, which is the hole structure, is also formed on the first body 10. The hole structure is located at the position of the fire hole profile 12 (the fire hole profile 12 for forming the auxiliary fire hole 42). By providing the avoidance structure 15 and arranging it around the circumference of the hole structure, there is sufficient space for riveting around the hole structure to ensure that the riveting device can effectively perform the riveting operation, thereby connecting and fixing the first body 10 and the second body 20.

**[0426]** It should be pointed out that in the present application, the first connection structure 30 is located at the root of the auxiliary fire hole 42 (the communication position between the auxiliary fire hole 42 and the accommodation cavity 80). A part of the structure of the avoidance structure 15 occupies the fire hole profile 12,

and another part of the structure occupies the first cavity 11 used to form the accommodation cavity 80, so as to ensure sufficient riveting space.

**[0427]** In some examples of this embodiment, the burner 100 comprises a fastener; a first hole is provided on the first body 10, and a second hole is provided on the second body 20. When the first body 10 is connected and fixed to the second body 20, the first body 10 is arranged at the top of the second body 20 so that the first hole is concentric with the second hole, and the fastener is fitted with the first hole and the second hole respectively to achieve the connection and fixation of the first body 10 and the second body 20.

**[0428]** It should be pointed out that the fastener can be a rivet, a pin, or a screw, etc.

**[0429]** Further, the burner 100 also comprises a second connection structure 50. The number of the second connection structure 50 is at least one, and the second connection structure 50 is used to connect and fix the first body 10 and the second body 20.

**[0430]** By setting the second connection structure 50, the fixation positions between the first body 10 and the second body 20 are increased, further improving the overall strength and stability of the burner 100.

**[0431]** It should be pointed out that a third connection part 14 is provided on the first body 10, and a fourth connection part 23 is provided on the second body 20. The third connection part 14 cooperates with the fourth connection part 23 to form the second connection structure 50. The structure of the third connection part 14 is the same as that of the first connection part 13, and the structure of the fourth connection part 23 is the same as that of the second connection part 22. For details, reference may be made to the embodiments of the first connection part 13 and the second connection part 22. The specific embodiments of the third connection part 14 and the fourth connection part 23 will not be described repeatedly in the present application.

**[0432]** As shown in FIGS. 64 to 74, according to some embodiments of the present application, a burner 100 is provided, which comprises two parts, i.e., a first body 10 and a second body 20. The first body 10 and the second body 20 are matched with each other and they enclose to form an accommodation cavity 80. When the burner 100 is used in a cooking appliance, a gas pipeline is communicated with the accommodation cavity 80.

**[0433]** As shown in FIGS. 71 and 72, a partition structure 112 is provided on at least one of the first body 10 and the second body 20. The partition structure 112 is arranged at the connection positions of the first body 10 and the second body 20, and at least one fire hole group 30-1 is formed at the connection positions. The accommodation cavity 80 is communicated with the outside through the fire hole group 30-1.

**[0434]** As shown in FIGS. 71 and 72, in each fire hole group 30-1, there are main fire holes 131 and branch fire holes 42-1. One end of the main fire hole 131 is communicated with the accommodation cavity 80, and the other end of the main fire hole 131 is communicated with the branch fire hole 42-1. Branch fire holes 42-1 are provided on both axial sides of the main fire hole 131 respectively, and the branch fire holes 42-1 located on both axial sides of the main fire hole 131 have different gas flow directions.

**[0435]** Specifically, when the burner 100 is used in a cooking appliance and cooking is performed, gas is introduced into the accommodation cavity 80 communicated with the gas pipeline, which flows outward through the main fire holes 131 and the branch fire holes 42-1 of the fire hole group 30-1. An ignition element 200 of the cooking appliance ignites the gas flowing out of the branch fire holes 42-1, causing it to burn and provide heat for cooking.

**[0436]** Due to the different gas flow directions of the branch fire holes 42-1 located on both axial sides of the main fire hole 131, the directions of gas flowing out of the branch fire holes 42-1 of the fire hole groups 30-1 are not parallel, which increases the possibility of gas contact with each other, facilitates gas mixing, and thus improves the combustion performance and fire transmission performance of the burner 100.

**[0437]** It should be understood that the burner 100 is provided with an air inlet 102 and a gas inlet that are communicated with the accommodation cavity 80. The gas inlet is used for communication with the gas pipeline, and the air inlet 102 is used for the entry of air. The gas in the gas pipeline and the air enter the accommodation cavity 80 through the gas inlet and the air inlet 102 respectively according to a preset ratio, so that the gas entering the accommodation cavity 80 forms a mixed gas to meet the needs of gas combustion.

**[0438]** In the prior art, two adjacent fire holes need to be communicated with each other to achieve fire transmission. However, since the two fire holes are connected together, it is impossible to achieve secondary air supply, which can easily lead to yellow flame phenomenon during gas combustion. In the embodiment of the present application, in each fire hole group 30-1, the gas from the other end of the main fire hole 131 is diverted by the branch fire hole 42-1. The gas flow directions of the branch fire holes 42-1 located on both axial sides of the main fire hole 131 are different, so that there is a certain interval between the branch fire holes 42-1 on both axial sides of the main fire hole 131. When the gas is sprayed out through the branch fire holes 42-1, they can be mixed again, so that the gas can burn more fully, thereby eliminating the situation of yellow flame caused by insufficient gas combustion.

**[0439]** In addition, since the gas can fully burn, the production of harmful substances such as carbon monoxide caused by insufficient combustion of gas is reduced, which improves the safety of users during use. Meanwhile, the full combustion of gas can reduce the consumption of gas and lower the user's usage costs.

**[0440]** In addition, due to the different gas flow directions of the branch fire holes 42-1 located on both axial

sides of the main fire hole 131 in each fire hole group 30-1, the directions of gas sprayed from two adjacent branch fire holes 42-1 are not parallel. When the gas sprayed from one branch fire hole 42-1 is ignited, an induced burning operation can be achieved on the adjacent branch fire hole 42-1, thereby improving the fire transmission performance of the burner 100.

**[0441]** It should be pointed out that the first body 10 and the second body 20 cooperate with each other to form the structure of the burner 100. There are connection positions between the first body 10 and the second body 20, and the partition structure 112 can be arranged only on the first body 10, only on the second body 20, or on both the first body 10 and the second body 20. After the first body 10 and the second body 20 are matched in place, the partition structure 112 is located at the connection positions between the first body 10 and the second body 20. Due to the partition of the partition structure 112, the fire hole groups 30-1 are formed at the connection positions. This method of forming the fire hole groups 30-1 does not require the operation of separately providing the fire hole groups 30-1 during the processing, thereby simplifying the processing steps, accelerating the production cycle, and reducing the manufacturing cost.

**[0442]** Further, it should be understood that as shown in FIGS. 67, 68, 71 and 72, the partition structure 112 comprises first partition parts 1121 and second partition parts 1122. The number of the first partition parts 1121 is multiple, and all the first partition parts 1121 are arranged along the connection positions between the second body 20 and the first body 10. At the same time, two adjacent first partition parts 1121 are spaced apart to form the main fire hole 131. The number of the second partition parts 1122 is also multiple, and all the second partition parts 1122 are arranged around the outer side of all the first partition parts 1121. At least one second partition part 1122 corresponds to the position between two adjacent first partition parts 1121. The second partition part 1122 is spaced apart from the first partition part 1121, and two adjacent second partition parts 1122 are spaced apart to form the branch fire hole 42-1.

**[0443]** Specifically, the multiple first partition parts 1121 are arranged at the connection positions between the first body 10 and the second body 20, and the multiple main fire holes 131 are formed at the connection positions. One end of the main fire hole 131 is communicated with the accommodation cavity 80 formed by the first body 10 and the second body 20. The multiple second partition parts 1122 are also arranged at the connection positions and located on the outer side of the first partition parts 1121 to form multiple branch fire holes 42-1. The other end of the main fire hole 131 is communicated with the outside through the branch fire hole 42-1.

**[0444]** When the burner 100 is in use, the gas in the accommodation cavity 80 is sprayed out to the outside through the main fire holes 131 and the branch fire holes 42-1, and is ignited by the ignition element 200 of the cooking appliance, thereby providing heat for the cooking process through the combustion of the gas.

**[0445]** It should be understood that at least one second partition part 1122 is correspondingly arranged at the interval position between two adjacent first partition parts 1121. When the gas in the accommodation cavity 80 flows out through the main fire hole 131, the gas collides with the second partition part 1122 and is guided by the second partition part 1122 to reach the position of the branch fire hole 42-1 and sprayed out through the branch fire hole 42-1, thereby achieving the flow diversion operation on the gas.

**[0446]** Further, as shown in FIGS. 71 and 72, each fire hole group 30-1 comprises one main fire hole 131 and at least two branch fire holes 42-1. In the embodiment of the present application, taking one fire hole group 30-1 comprising two branch fire holes 42-1 as an example, in the flow direction of gas, the two branch fire holes 42-1 are respectively arranged on two opposite sides of the main fire hole 131. The two branch fire holes 42-1 and the main fire hole 131 form a Y-shaped structure, that is, the fire hole group 30-1 is arranged in a Y shape.

**[0447]** When the gas in the accommodation cavity 80 enters the branch fire holes 42-1 respectively through the main fire hole 131, the gas is sprayed out through the two branch fire holes 42-1, and the directions of the sprayed gas are set at an angle (which is not zero), so that the gas leaving the branch fire holes 42-1 can be mixed again, and secondary air supply is also achieved so that the gas can burn fully, thereby ensuring the complete combustion of the gas and solving the problem of yellow flame in the combustion process of existing burners 100. At the same time, it can also reduce the production of harmful substances in the combustion process, improving the safety in use. In addition, the full combustion of gas can also reduce the amount of gas used, reducing the user's usage cost.

**[0448]** In addition, the two branch fire holes 42-1 can be symmetrically or asymmetrically arranged along the axis of the main fire hole 131. The specific arrangement of the two branch fire holes 42-1 can be set according to specific needs.

**[0449]** It should be pointed out that when the number of the fire hole groups 30-1 is at least two, the gas flow directions of two adjacent branch fire holes 42-1 in two adjacent fire hole groups 30-1 are arranged in an intersecting manner, which enables the gas to contact with each other and facilitates induced burning and fire transmission operation.

**[0450]** In some embodiments of the present application, all the first partition parts 1121 are provided on the first body 10, and all the second partition parts 1122 are provided on the second body 20. When the first body 10 and the second body 20 are matched, all the first partition parts 1121 and all the second partition parts 1122 form the fire hole groups 30-1 at the connection positions of the first body 10 and the second body 20. By placing the first partition parts 1121 on the first body 10 and placing the second partition parts 1122 on the second body 20, it is

easy to process the first partition parts 1121 synchronously during the processing of the first body 10 and process the second partition parts 1122 synchronously during the processing of the second body 20. This simplifies the manufacturing process, improves the processing efficiency, and further reduces the manufacturing cost.

**[0451]** In some embodiments of the present application, all the first partition parts 1121 and all the second partition parts 1122 are provided on the second body 20. When the first body 10 is matched with the second body 20, all the first partition parts 1121 and all the second partition parts 1122 form the fire hole groups 30-1 at the connection positions of the first body 10 and the second body 20. By placing both the first partition parts 1121 and the second partition parts 1122 on the second body 20, it is easy to process the first partition parts 1121 and the second partition parts 1122 synchronously during the processing of the second body 20. At the same time, it can also simplify the manufacturing process of the first body 10 and improve the convenience of processing the first body 10.

**[0452]** In some embodiments of the present application, as shown in FIGS. 67 and 68, all the first partition parts 1121 and all the second partition parts 1122 are provided on the first body 10. When the first body 10 is matched with the second body 20, all the first partition parts 1121 and all the second partition parts 1122 form the fire hole groups 30-1 at the connection positions of the first body 10 and the second body 20. By placing both the first partition parts 1121 and the second partition parts 1122 on the first body 10, it is easy to process the first partition parts 1121 and the second partition parts 1122 synchronously during the processing of the first body 10. At the same time, it can also simplify the manufacturing process of the second body 20 and improve the convenience of processing the second body 20.

**[0453]** In some embodiments of the present application, the second body 20 has a first planar structure, and the first partition part 1121 is a protruding structure formed on the first body 10, which is arranged on the side of the first body 10 that faces the second body 20 by welding or casting. When the first body 10 and the second body 20 are matched with each other, a first profile, which is the protruding structure, is pressed against the first planar structure, and the space enclosed between two adjacent first partition parts 1121 and the first planar structure is the main fire hole 131. The protruding structure is arranged on the first body 10 by welding or casting, so as to ensure the connection strength with the first body 10 and avoid the occurrence of loosening and falling off at the connection positions due to long time use of the burner 100.

**[0454]** In some embodiments of the present application, as shown in FIGS. 67 and 68, all the first partition parts 1121 are provided on the first body 10, and the second body 20 has a first planar structure. The first planar structure is arranged corresponding to all the first partition parts 1121, and the first partition parts 1121 are first profiles, which are protruding structures formed by protruding the first body 10 toward the side close to the first planar structure of the second body 20.

**[0455]** When the first body 10 and the second body 20 are matched with each other, the first profiles, which are the protruding structures, are pressed against the first planar structure, and the space enclosed between two adjacent first partition parts 1121 and the first planar structure is the main fire hole 131. The first profiles are formed on the first body 10 by stamping, which is convenient to process and has a low manufacturing cost, effectively reducing the manufacturing cost of the burner 100.

**[0456]** It should be understood that the structure of the main fire hole 131 is formed by the first profiles and the first planar structure being pressed against each other. This structure is relatively simple, and the first profiles can change the cross-sectional shape of the main fire hole 131. When the gas passes through the main fire hole 131, the main fire hole 131 can act on the gas, causing it to rotate and move when flowing through the main fire hole 131, thereby improving the uniformity of the gas and ensuring that the gas can burn fully, thereby improving the combustion performance of the burner 100.

**[0457]** It should be pointed out that the first profile is a structure with smooth surface, which avoids blocking the flowing gas and improves the smoothness of flowing gas.

**[0458]** Further, as shown in FIGS. 67 and 68, the cross section of the first profile in the protruding direction is a tapered structure. Specifically, the protruding direction is from the first body 10 to the second body 20. By setting the cross section of the first profile in the protruding direction as a tapered structure, the cross section of the main fire hole 131 in the protruding direction is irregular, which can act on the gas when it passes through the main fire hole 131, causing the gas to rotate and move when flowing through the main fire hole 131, improving the uniformity of the gas, ensuring that the gas can burn fully, and enhancing the combustion performance of the burner 100.

**[0459]** It should be pointed out that the cross section of the main fire hole 131 in the protruding direction can be a trapezoidal, semi-circular, or wavy shaped structure, or other irregularly-shaped structures (non-circular hole, or square hole).

**[0460]** In some embodiments of the present application, the second body 20 has a second planar structure, and the second partition part 1122 is a protruding structure formed on the second body 20, which is arranged on the side of the first body 10 that faces the second body 20 by welding or casting. When the first body 10 and the second body 20 are matched with each other, a second profile, which is the protruding structure, is pressed against the second planar structure, and the space enclosed between two adjacent second partition parts 1122 and the second planar structure is the main fire hole 131. The protruding structure is arranged on the first body 10

by welding or casting, so as to ensure the connection strength with the first body 10 and avoid the occurrence of loosening and falling off at the connection positions due to long time use of the burner 100.

**[0461]** In some embodiments of the present application, as shown in FIGS. 67 and 68, all the second partition parts 1122 are provided on the first body 10, and the second body 20 has a second planar structure. The second planar structure is arranged corresponding to all the second partition parts 1122, and the second partition parts 1122 are second profiles, which are protruding structures formed by protruding the first body 10 toward the side close to the second planar structure of the second body 20.

**[0462]** When the first body 10 and the second body 20 are matched with each other, the second profiles, which are the protruding structures, are pressed against the second planar structure, and the space enclosed between two adjacent second partition parts 1122 and the second planar structure is the branch fire hole 42-1. The second profiles are formed on the first body 10 by stamping, which is convenient to process and has a low manufacturing cost, effectively reducing the manufacturing cost of the burner 100.

**[0463]** It should be understood that the structure of the branch fire hole 42-1 is formed by the second profiles and the second planar structure being pressed against each other. This structure is relatively simple, and the second profiles can change the cross-sectional shape of the branch fire hole 42-1. When the gas passes through the branch fire hole 42-1, the branch fire hole 42-1 can act on the gas, causing it to rotate and move when flowing through the branch fire hole 42-1, thereby improving the uniformity of the gas and ensuring that the gas can burn fully, thereby improving the combustion performance of the burner 100.

**[0464]** It should be pointed out that the second profile is a structure with smooth surface, which avoids blocking the flowing gas and improves the smoothness of flowing gas.

**[0465]** Further, as shown in FIGS. 67 and 68, the cross section of the second profile in the protruding direction is a tapered structure. Specifically, the protruding direction is from the first body 10 to the second body 20. By setting the cross section of the second profile in the protruding direction as a tapered structure, the cross section of the branch fire hole 42-1 in the protruding direction is irregular, which can act on the gas when it passes through the branch fire hole 42-1, causing the gas to rotate and move when flowing through the branch fire hole 42-1, improving the uniformity of the gas, ensuring that the gas can burn fully, and enhancing the combustion performance of the burner 100.

**[0466]** It should be pointed out that the cross section of the branch fire hole 42-1 in the protruding direction can be a trapezoidal, semi-circular, or wavy shaped structure, or other irregularly-shaped structures (non-circular hole, or square hole).

**[0467]** Further, as shown in FIGS. 64, 66, 71 and 72, in the embodiment of the present application, the number of the fire hole groups 30-1 is larger than or equal to two. As shown in FIG. 72, two adjacent fire hole groups 30-1 share one branch fire hole 42-1.

**[0468]** Specifically, in the flow direction of the gas, the first partition parts 1121 and the second partition parts 1122 of the partition structure 112 are alternately arranged, that is, the main fire holes 131 and the branch fire holes 42-1 are alternately arranged. This arrangement enables the gas output from two main fire holes 131 to enter one branch fire hole 42-1, thereby further achieving the mixing of the gas. When the gas is sprayed out through the branch fire hole 42-1, full combustion can be further achieved, which further improves the combustion performance of the burner 100.

**[0469]** It should be understood that the gas output from two main fire holes 131 can enter one branch fire hole 42-1. Due to the different directions of gas output from the two main fire holes 131, the mixing of the two streams of gas with different directions in the branch fire hole 42-1 can, on one hand, improve the uniformity of gas mixing to make the combustion more complete, and on the other hand, increase the flow capacity of gas, increasing the spraying effect of gas and further improving the combustion performance of the burner 100.

**[0470]** It should be pointed out that in the embodiment of the present application, the burner 100 has a bar-like structure (or an approximately bar-like structure), and there are multiple fire hole groups 30-1 (more than two), all of which are divided into two groups. Two fire hole groups 30-1 are respectively arranged in the length direction of the bar-like structure, and two fire hole groups 30-1 are symmetrically arranged relative to the centerline of the bar-like structure. One end of the fire hole group 30-1 is used for installing the ignition element 200 and the flame detection element 500 of the combustion assembly 1000-1 (the ignition element 200 is located on the same side as one set of fire hole groups 30-1, and the flame detection element 500 is located on the same side as one set of fire hole groups 30-1).

**[0471]** In addition, as shown in FIGS. 64 to 65, a fire transmission structure 21-1 is also provided on the burner 100. The fire transmission structure 21-1 comprises a first burning-induction section 21-12, a fire transmission section, and a second burning-induction section 21-13 that are connected in sequence. The first burning-induction section 21-12 is arranged corresponding to one set of fire hole groups 30-1, and the second burning-induction section 21-13 is arranged corresponding to another set of fire hole groups 30-1. The fire transmission section 21-11 is arranged corresponding to one end of the fire hole group 30-1 that is away from the ignition element 200 and is communicated with the accommodation cavity 80. At the same time, the fire transmission section 21-11 communicates the first burning-induction section 21-12 with the second burning-induction section 21-13. When the ignition element 200 ignites the gas sprayed from the fire

hole group 30-1 near it, the first burning-induction section 21-12 is used to ignite all the fire hole groups 30-1 on this side. When the flame reaches the fire transmission section 21-11 along the first burning-induction section 21-12, the gas in the accommodation cavity 80 that enters the fire transmission section 21-11 is induced to burn, and the flame continues to flow along the fire transmission section 21-11. When the flame flows to the fire transmission section 21-11 and the second burning-induction section 21-13, it will induce the gas sprayed from the fire hole group 30-1 on the other side to burn, and the gas sprayed from all the fire hole groups 30-1 on this side is all induced to burn through the flow of the flame along the second burning-induction section 21-13.

**[0472]** Through the cooperation of two burning-induction sections and the fire transmission section 21-11, the effective induced burning of the burner 100 is achieved, thereby ensuring the full combustion of the burner 100.

**[0473]** Further, as shown in FIGS. 65 and 70, in the embodiment of the present application, the first burning-induction section 21-12 and the second burning-induction section 21-13 are arranged in parallel and spaced apart, and the fire transmission section 21-11 connects one end of the first burning-induction section 21-12 with one end of the second burning-induction section 21-13, so that during the combustion process of the burner 100, the fire hole groups 30-1 on both sides can be fully ignited, thereby ensuring the combustion effect of the burner 100.

**[0474]** Further, as shown in FIGS. 64 and 73, in the embodiment of the present application, the first body 10 and the second body 20 are arranged up and down, with the second body 20 located at the bottom and the first body 10 located at the top. The fire transmission structure 21-1 is arranged on the second body 20. At the same time, the fire transmission structure 21-1 is arranged in the extension direction of the connection positions between the first body 10 and the second body 20. Specifically, the top size of the second body 20 is larger than the bottom size of the first body 10. When the first body 10 is fixed at the top of the second body 20, the part of the second body 20 that is located outside the first body 10 has residual structure. The fire transmission structure 21-1 is formed on the residual structure of the second body 20 and is arranged around the connection positions between the first body 10 and the second body 20. The arrangement of the fire transmission structure 21-1 ensures effective fire transmission between the fire hole groups 30-1 on both sides, thereby ensuring the full combustion of burner 100.

**[0475]** It should be understood that by arranging the fire transmission structure 21-1 on the second body 20, when the user is using the cooking appliance, the user can observe the fire transmission process from top to bottom, achieving explicit fire transmission.

**[0476]** It should be pointed out that as shown in FIG. 69, the first burning-induction section 21-12 can be formed by a first flanging of the second body 20, and the first flanging is spaced apart from the first body 10 (the first body 10 has the positions of the fire hole groups 30-1 on one side), thereby forming a first channel, which is the first burning-induction section 21-12.

**[0477]** Similarly, as shown in FIG. 69, the second burning-induction section 21-13 can also be formed by a second flanging of the second body 20, and the second flanging is spaced apart from the first body 10 (the first body 10 has the positions of the fire hole groups 30-1 on the other side), thereby forming a second channel, which is the second burning-induction section 21-13.

**[0478]** In addition, as shown in FIGS. 67, 68, 69 and 70, the first body 10 is a first plate-shaped member, and the second body 20 is a second plate-shaped member. A first cavity 11 is formed on the first plate-shaped member by stamping, and a second cavity 21 is formed on the second plate-shaped member. After the first body 10 is connected and fixed to the second body 20, the first cavity 11 and the second cavity 21 are interlocked to form the complete accommodation cavity 80. When the combustion assembly 1000-1 is used in the cooking appliance, the gas pipeline is communicated with the accommodation cavity 80 so that gas can enter the accommodation cavity 80 and cook food through combusting and heating.

**[0479]** Further, the fire transmission section 21-11 is communicated with the accommodation cavity 80 of the burner 100 through a communication structure, which is a communication hole group. Specifically, a communication hole group is provided to achieve effective communication between the accommodation cavity 80 and the fire transmission section 21-11, so that the gas in the accommodation cavity 80 can enter the fire transmission section 21-11, and then the fire transmission section 21-11 is used to achieve the fire transmission operation on the fire hole groups 30-1 on both sides, so that the burner 100 can burn fully.

**[0480]** It should be pointed out that the communication hole group comprises at least one communication hole. In the embodiment of the present application, the communication hole group comprises multiple (three or more) communication holes, and all the communication holes are spaced apart in the extension direction of the fire transmission section 21-11. By setting multiple communication holes, the amount of gas entering the fire transmission section 21-11 is increased, ensuring the effect of fire transmission and effectively ensuring the effective fire transmission of the fire hole groups 30-1 on both sides.

**[0481]** In addition, in the embodiment of the present application, as shown in FIGS. 69 and 70, multiple split fire profiles 26-1 are formed on the second body 20 (which are formed by protruding toward the first body 10), and the positions on the first body 10 that correspond to the second body 20 are flat plate structures. When the first body 10 and the second body 20 are connected and fixed, the communication holes are located on both sides of the split fire profiles 26-1. The split fire profiles 26-1 are manufactured by stamping, which can reduce the manufacturing cost, make the structure of the burner 100 simpler, and lower the manufacturing cost.

**[0482]** It should be understood that the split fire profile 26-1 can also be formed on the first body 10, and the structure of the split fire profile 26-1 formed on the first body 10 is opposite to the structure of the split fire profile 26-1 formed on the second body 20. For details, reference may be made to the structure of the split fire profile 26-1 formed on the second body 20.

**[0483]** Further, as shown in FIG. 65, a flame stabilization structure 23-1 is also provided on the burner 100. The flame stabilization structure 23-1 is located on the outer side of the communication hole group and is spaced apart from the communication hole group; the fire transmission section 21-11 is formed between the flame stabilization structure 23-1 and the communication hole group.

**[0484]** Specifically, by setting the flame stabilization structure 23-1, the fire transmission section 21-11 forms a channel like structure. When the fire transmission operation is performed, it can be ensured that the flame effectively flows along the fire transmission section 21-11, thereby ensuring the effect of fire transmission.

**[0485]** It should be pointed out that a fire transmission profile 17 is provided on the first body 10, which is formed on the first body 10 by stamping. After the first body 10 is connected and fixed to the second body 20, the fire transmission profile 17 is located above the fire transmission section 21-11 (the fire transmission profile 17 is spaced apart from the flame stabilization structure 23-1). By setting the fire transmission profile 17, the external influence on the fire transmission process is further avoided, and the fire transmission effect is further improved.

**[0486]** In addition, the air inlet 102 is provided on the first body 10, and the gas inlet is formed by enclosing the first body 10 and the second body 20.

**[0487]** Further, the connection method between the first body 10 and the second body 20 can be various, which can specifically be one of adhesive bonding, riveting, welding, and fastener connection. Specifically, by setting the connection method between the first body 10 and the second body 20, the connection method between the two can be adaptively adjusted according to actual needs, thereby improving the convenience of processing.

**[0488]** In the embodiment of the present application, as shown in FIGS. 65, 66, 67 and 70, the first body 10 and the second body 20 are connected and fixed by riveting. Specifically, a first riveting profile 13-1 is formed on the first body 10 by stamping, and a second riveting profile 25-1 is formed on the second body 20 by stamping. When the first body 10 is matched with the second body 20, the first riveting profile 13-1 and the second riveting profile 25-1 are correspondingly arranged, and the first riveting profile 13-1 and the second riveting profile 25-1 are riveted together by riveting, thereby achieving the connection and fixation between the first body 10 and the second body 20.

**[0489]** The first riveting profile 13-1 is a riveting hole (the riveting hole is a concave hole, which can prevent the structure from protruding, avoid scratching assembly personnel or interfering with other components, etc.), and the second riveting profile 25-1 is a riveting head (in other embodiments, the second riveting profile 25-1 can be a riveting hole, and the first riveting profile 13-1 can be a riveting head). The riveting head is inserted into the riveting hole, and the riveting head is deformed using a riveting device to rivet and fix the first body 10 and the second body 20. The riveting method facilitates assembly and has high connection strength and good stability.

**[0490]** In addition, there are multiple riveting points between the first body 10 and the second body 20 (the structure formed by riveting and fixing the first riveting profile 13-1 and the second riveting profile 25-1), so as to increase the strength of the connection and fixation between the first body 10 and the second body 20.

**[0491]** As shown in FIGS. 64 to 74, the present application also provides a combustion assembly 1000-1, which comprises an ignition element 200, a flame detection element 500, and the burner 100 as described above; the ignition element 200 and the flame detection element 500 are installed on the burner 100.

**[0492]** Specifically, when the combustion assembly 1000-1 is used in a cooking appliance and cooking is performed, gas is introduced into the accommodation cavity 80 of the burner 100 that is communicated with the gas pipeline; the gas flows outward through the main fire holes 131 and the branch fire holes 42-1 of the fire hole group 30-1, and the ignition element 200 of the cooking appliance ignites the gas flowing out of the branch fire holes 42-1, causing it to burn and provide heat for cooking. Due to the different gas flow directions of the branch fire holes 42-1 located on both axial sides of the main fire hole 131 in each fire hole group 30-1, the directions of gas flowing out of the branch fire holes 42-1 of the fire hole groups 30-1 are not parallel, which increases the possibility of gas contact with each other, facilitates gas mixing, and thus improves the combustion performance and fire transmission performance of the burner 100.

**[0493]** It should be understood that by setting the ignition element 200, the gas is ignited using the ignition element 200. By setting the flame detection element 500, the position of the flame is detected, thereby achieving the detection of the combustion effect of the burner 100.

**[0494]** In addition, the ignition element 200 and the flame detection element 500 are installed and fixed on the burner 100 through an installation bracket 600, and the ignition element 200 and the flame detection element 500 are located at one end of the burner 100 that is away from the fire transmission section 21-11 of the fire transmission structure 21-1. The ignition element 200 is used to ignite the fire hole group 30-1 on one side, and the flame detection element 500 is used to detect whether the fire hole group 30-1 on the other side is induced to burn, so as to ensure that the burner 100 can burn fully.

**[0495]** It should be pointed out that the ignition element 200 is an ignition needle, and the flame detection element 500 is a flame sensor.

**[0496]** As shown in FIGS. 64 to 74, the present application also provides a cooking appliance, which comprises the burner 100 as described above.

**[0497]** Specifically, the first body 10 and the second body 20 of the burner 100 are connected and fixed to each other through the first connection structure 30; the fire holes 40 and the accommodation cavity 80 are formed between the first body 10 and the second body 20. The gas in the gas pipeline enters the accommodation cavity 80 and can be sprayed out through the fire holes 40, and the combustion of the burner 100 is achieved by ignition. During the combustion process of the burner 100, there is a flame in the first fire transmission channel 60, and the flame in the first fire transmission channel 60 can transmit fire to two adjacent fire holes 40. The position of the first connection structure 30 is set to block the communication between the fire hole 40 and the accommodation cavity 80. The flame in the first fire transmission channel 60 can supplement the position of the blocked fire hole 40, thereby inducing the fire holes 40 on two adjacent sides of the blocked fire hole 40 to burn, achieving fire transmission and avoid the problem of poor fire transmission at the riveting position.

**[0498]** In this embodiment, the cooking appliance mentioned above is a gas oven (in other embodiments, the cooking appliance is a gas stove, etc.). For the structure of other parts of the gas oven, reference may be made to the prior art, and a detailed description thereof will be omitted in the present application.

**[0499]** Described above are only specific preferred embodiments of the present application, but the scope of protection of the present application is not limited to this. Any changes or replacements that can be easily conceived by those skilled in the art within the technical scope disclosed by the present application should be covered within the scope of protection of the present application. Therefore, the scope of protection of the present application should be accorded with the scope of protection of the claims.

## Claims

1. A burner, wherein the burner comprises a first body and a second body, the second body and the first body are connected to each other through at least one first connection structure, and an accommodation cavity and a plurality of fire holes are formed between the second body and the first body; the accommodation cavity is used for communication with a gas pipeline; the plurality of fire holes are arranged at an interval in a preset direction and are respectively communicated with the accommodation cavity, and the plurality of fire holes are used for spraying gas;
   wherein the first body is arranged at a top of the second body, and at a connection position between the first body and the second body, the first connection structure blocks the communication between the fire hole and the accommodation cavity; the second body is provided with a first fire transmission channel, wherein the first fire transmission channel is arranged on an outer side of the plurality of fire holes, and is used for fire transmission between two adjacent fire holes.

2. The burner according to claim 1, wherein the second body is provided with a first blocking structure, wherein the first blocking structure is arranged on the outer side of the plurality of fire holes in a spaced-apart manner, and extends in a direction along which the plurality of fire holes are arranged at the interval, and an area spaced apart between the first blocking structure and the plurality of fire holes defines the first fire transmission channel.

3. The burner according to claim 2, wherein a distance between the first blocking structure and the fire hole is L, where $L \in [0.5mm, 8mm]$.

4. The burner according to claim 2, wherein in a thickness direction of the second body, a size of the first blocking structure is M, and a size of the fire hole is N, where $0<M\leq 2N$.

5. The burner according to claim 2, wherein the first blocking structure is a first protruding structure formed on the second body.

6. The burner according to claim 2, wherein the first blocking structure is a first flanging structure formed at an edge of the second body.

7. The burner according to any one of claims 1 to 6, wherein the plurality of fire holes form a first fire hole side and a second fire hole side on two opposite sides of the burner; a number of the first connection structure is multiple, and two adjacent first connection structures are arranged at an interval; all of the first connection structures comprise a first part and a second part, wherein the first part is arranged corresponding to the first fire hole side, and the second part is arranged corresponding to the second fire hole side; and
   the first fire transmission channel comprises a first channel part and a second channel part, wherein the first channel part corresponds to an outer side of the first fire hole side, and the second channel part corresponds to an outer side of the second fire hole side.

8. The burner according to claim 7, wherein at least one fire transmission hole is further provided between the first body and the second body, and the at least one fire transmission hole is communicated with the accommodation cavity and used for spraying gas; the

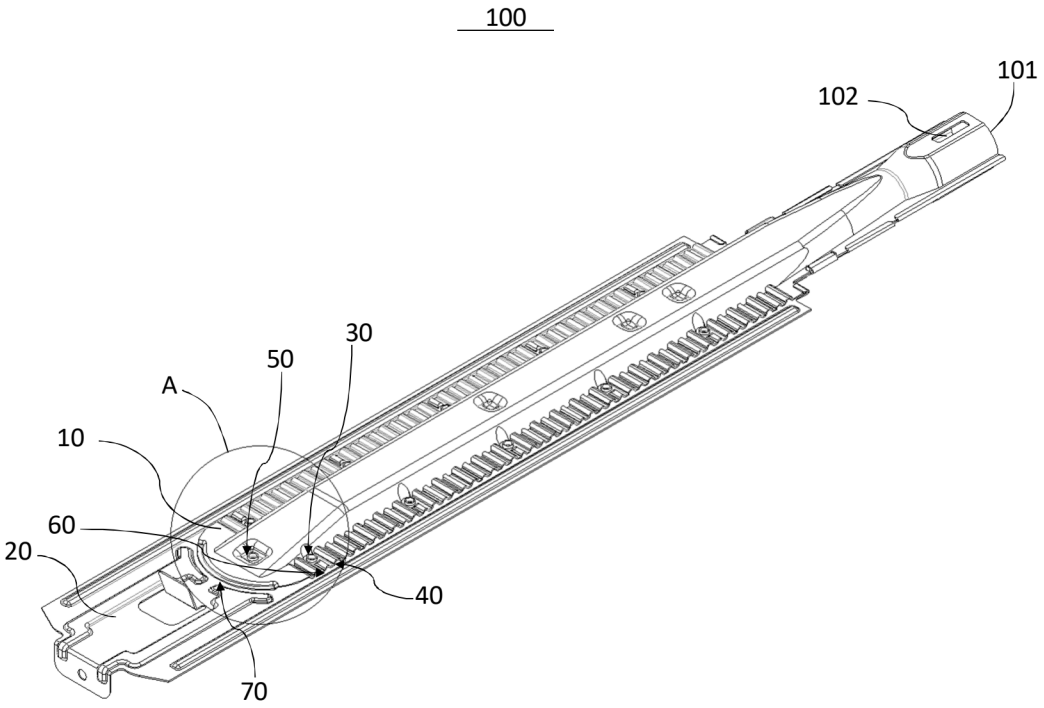
second body is further provided with a second fire transmission channel, wherein the second fire transmission channel is located on an outer side of the at least one fire transmission hole; the first channel part is communicated with the second fire transmission channel through the second fire transmission channel.

**9.** The burner according to claim 8, wherein a second blocking structure is provided on the second body, and the second blocking structure is arranged on the outer side of the at least one fire transmission hole in a spaced-apart manner, and an area spaced apart between the second blocking structure and the at least one fire transmission hole defines the second fire transmission channel.

**10.** The burner according to claim 9, wherein the second blocking structure is a second protruding structure formed on the second body.

**11.** The burner according to claim 9, wherein the second blocking structure is a second flanging structure formed at the edge of the second body.

**12.** A cooking appliance, wherein the cooking appliance comprises a burner according to any one of claims 1 to 11.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70

Fig.1

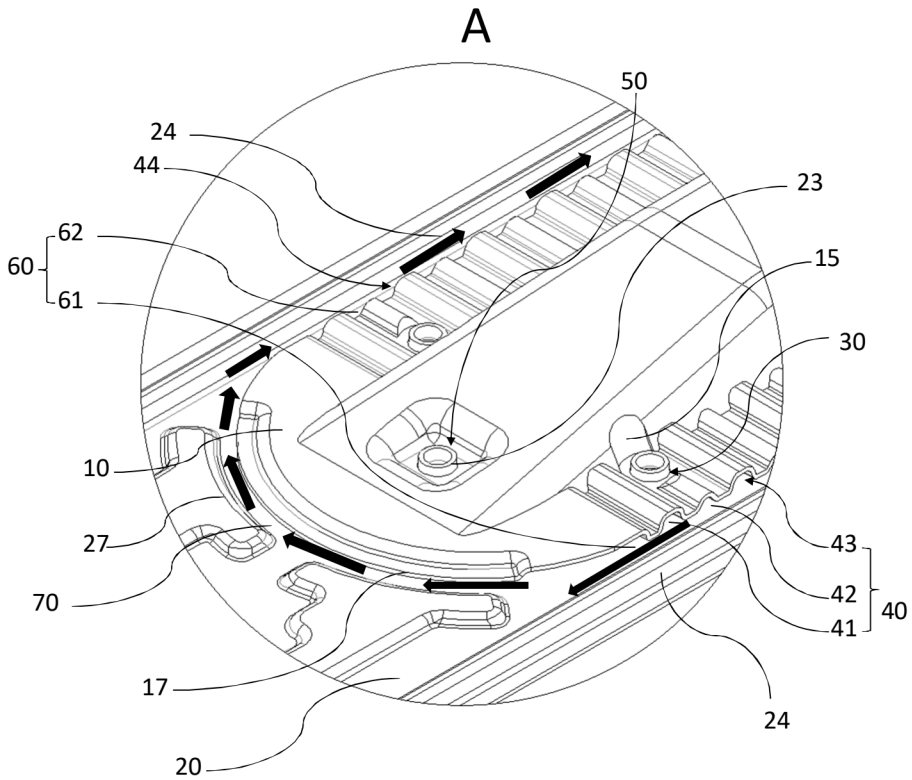
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Fig.2

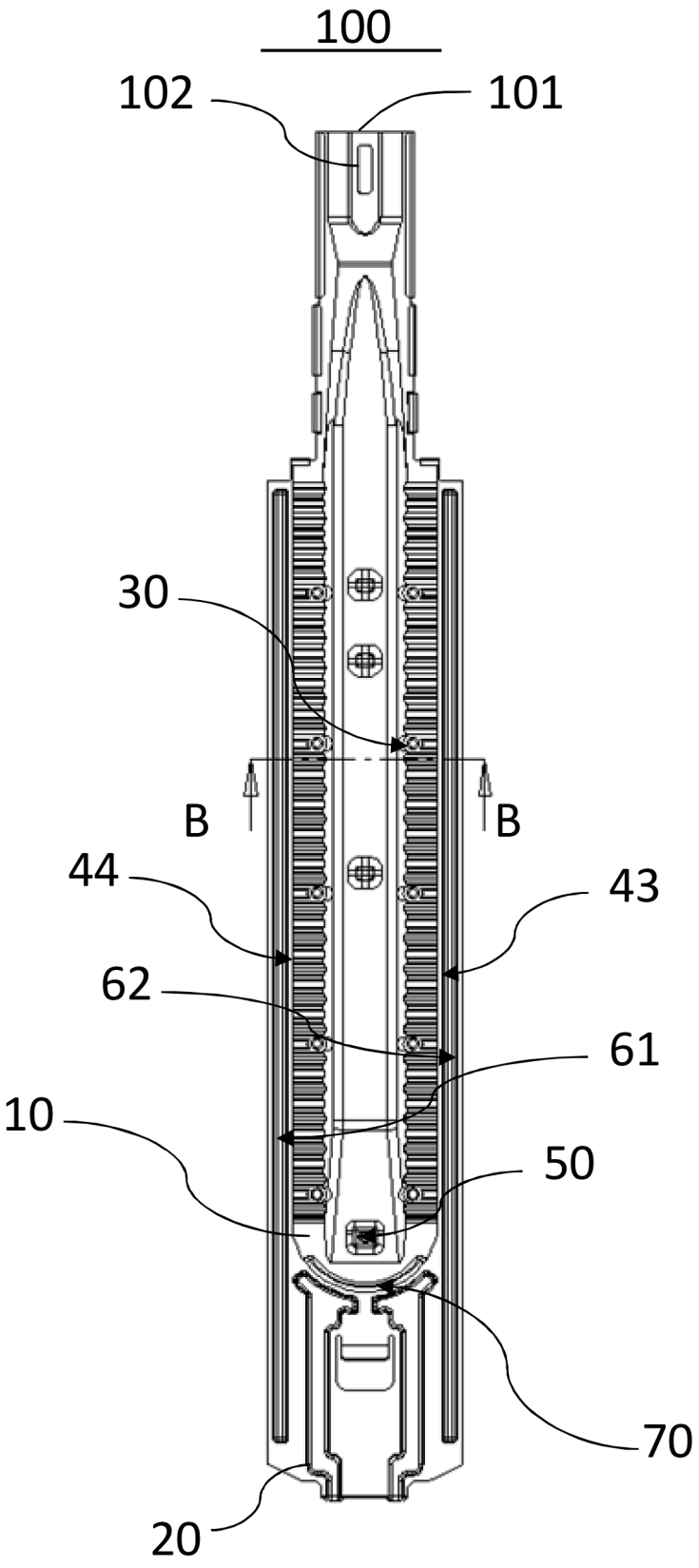


Fig.3

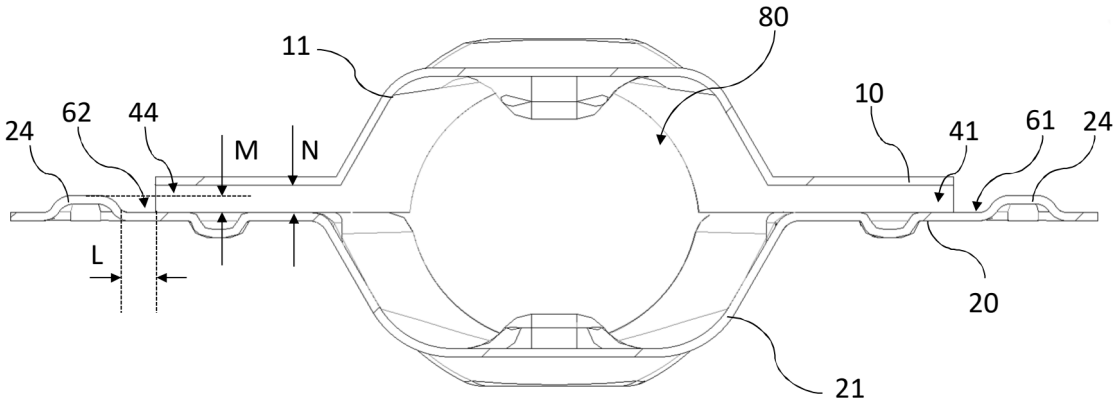
B-B
80
11
10
62
44
41
61
24
24
M
N
L
20
21

Fig.4

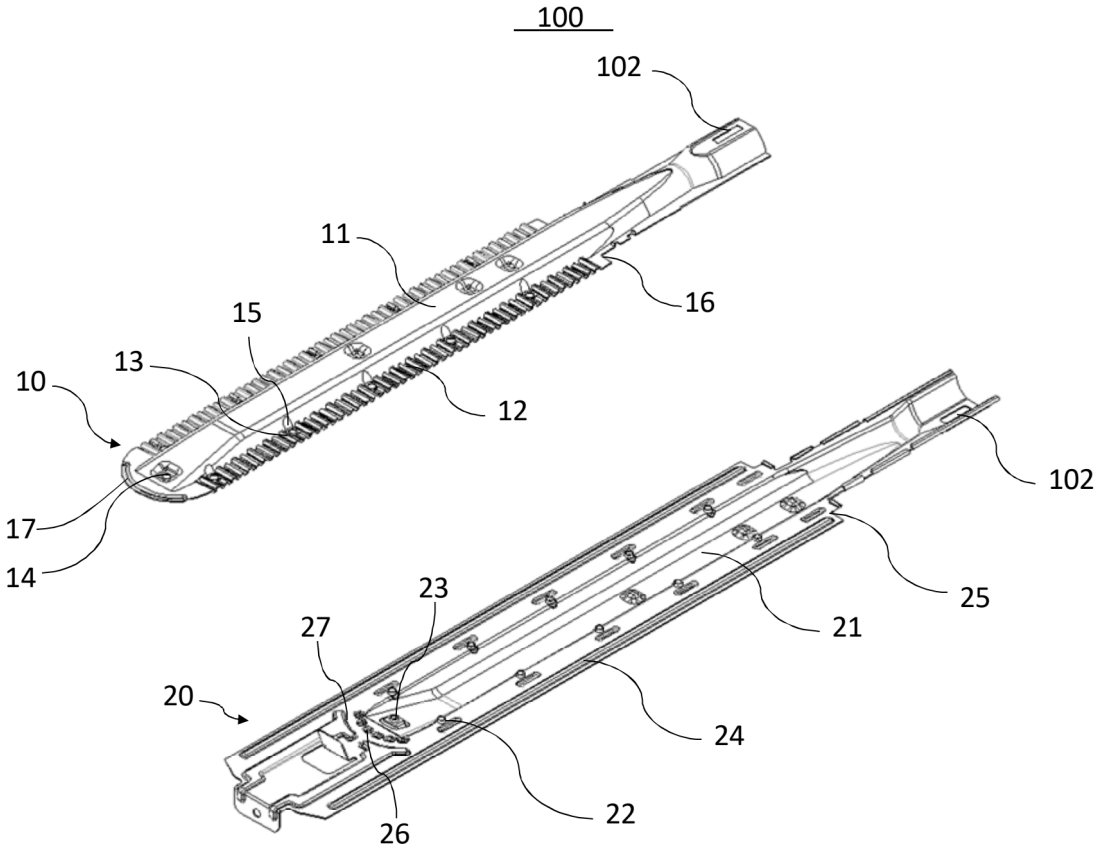
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Fig.5

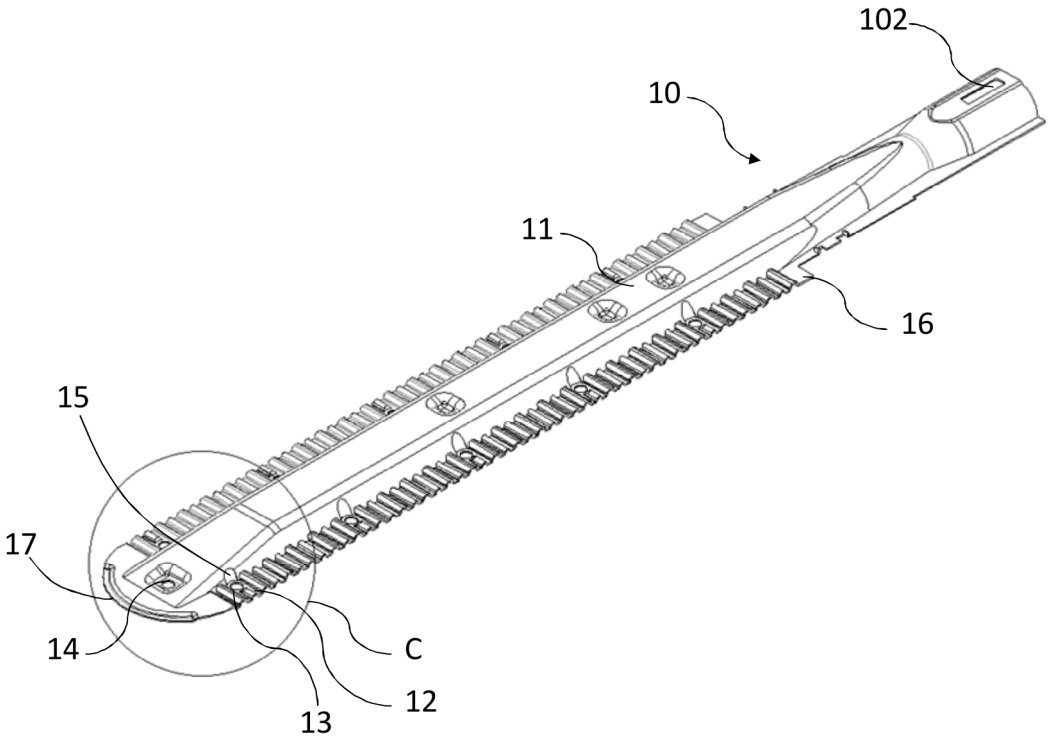


Fig.6

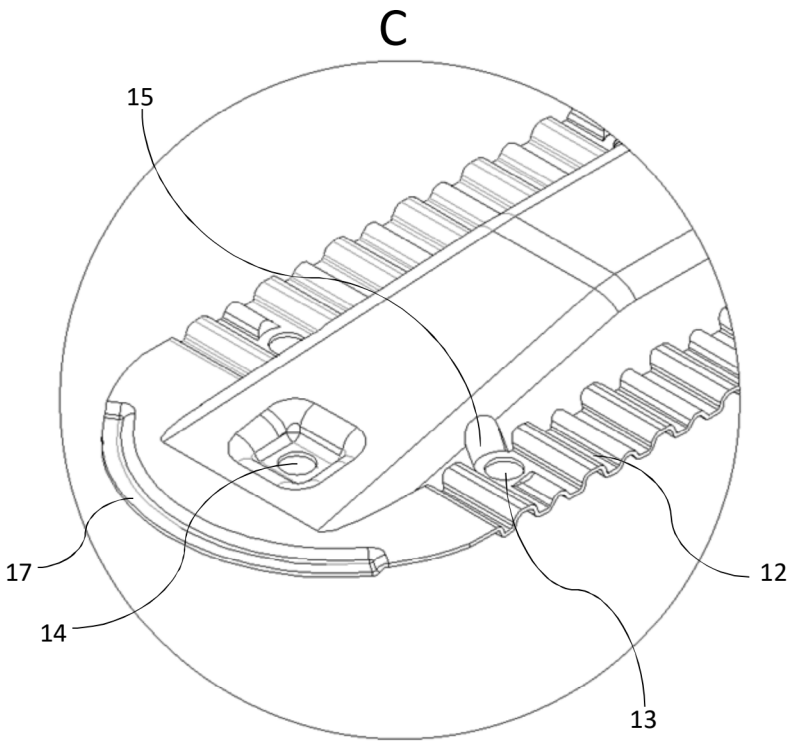


Fig.7

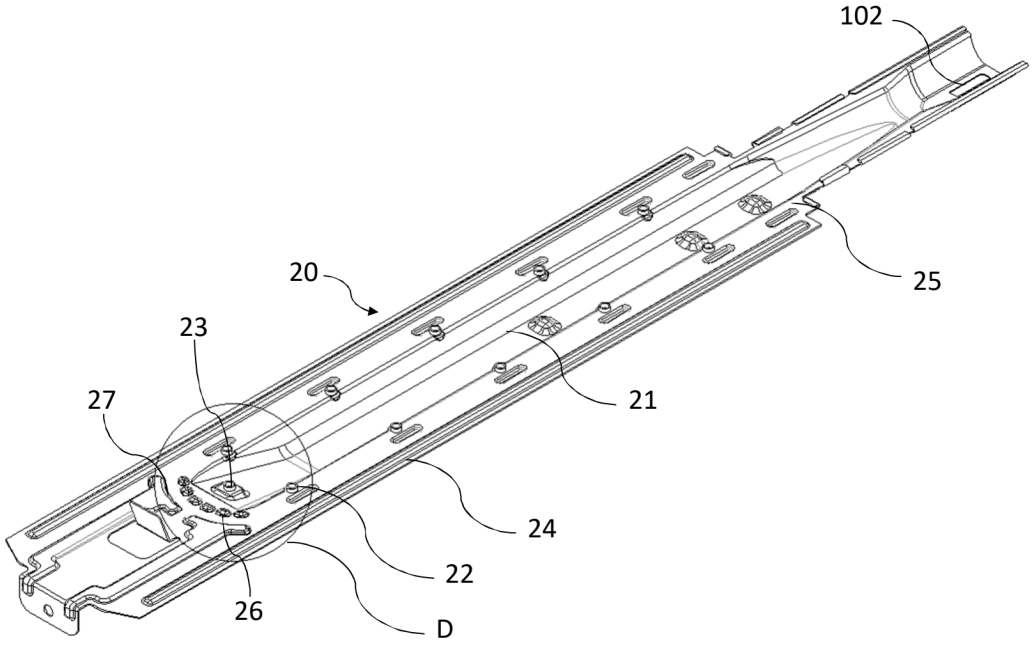


Fig.8

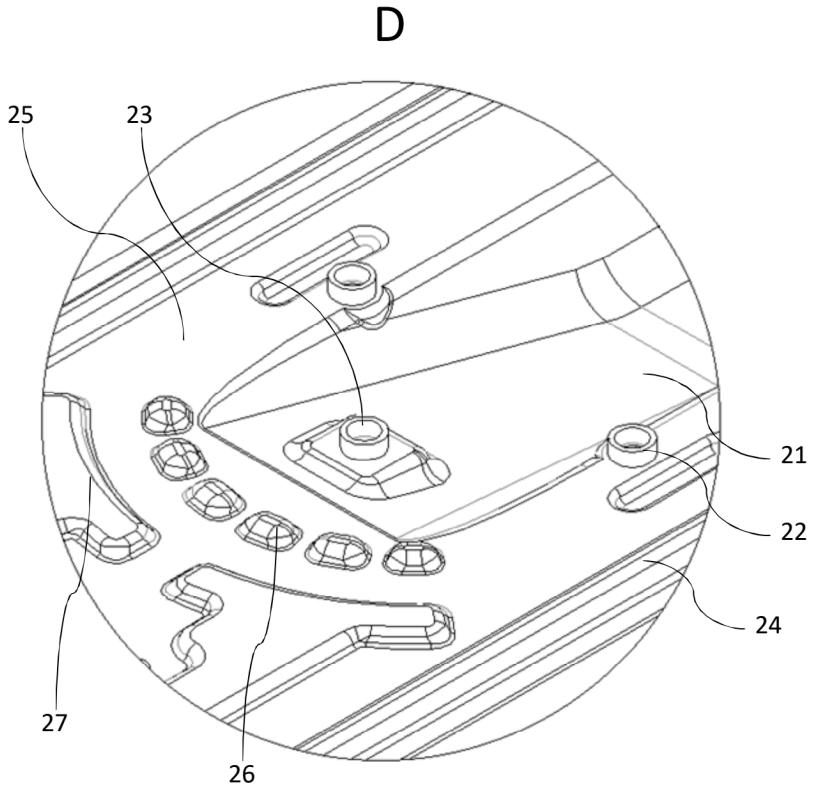


Fig.9

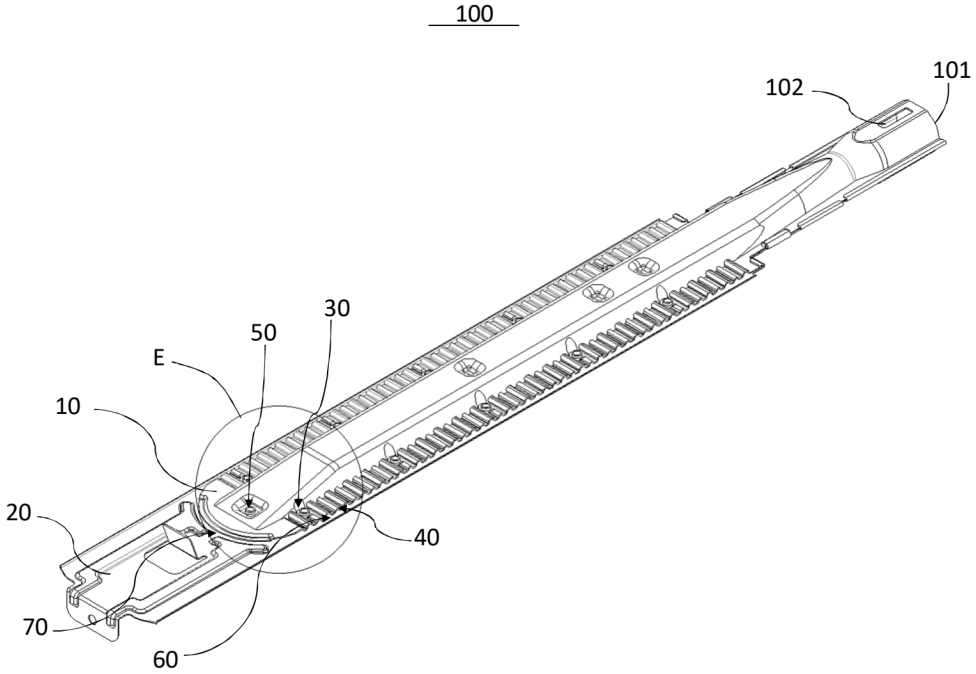
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Fig.10

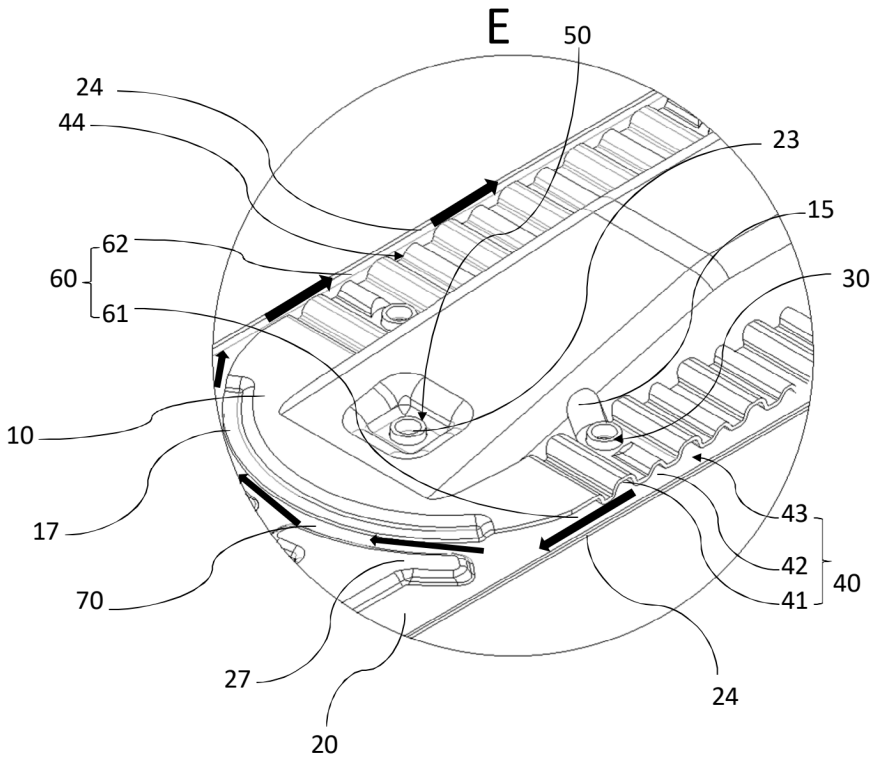
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Fig.11

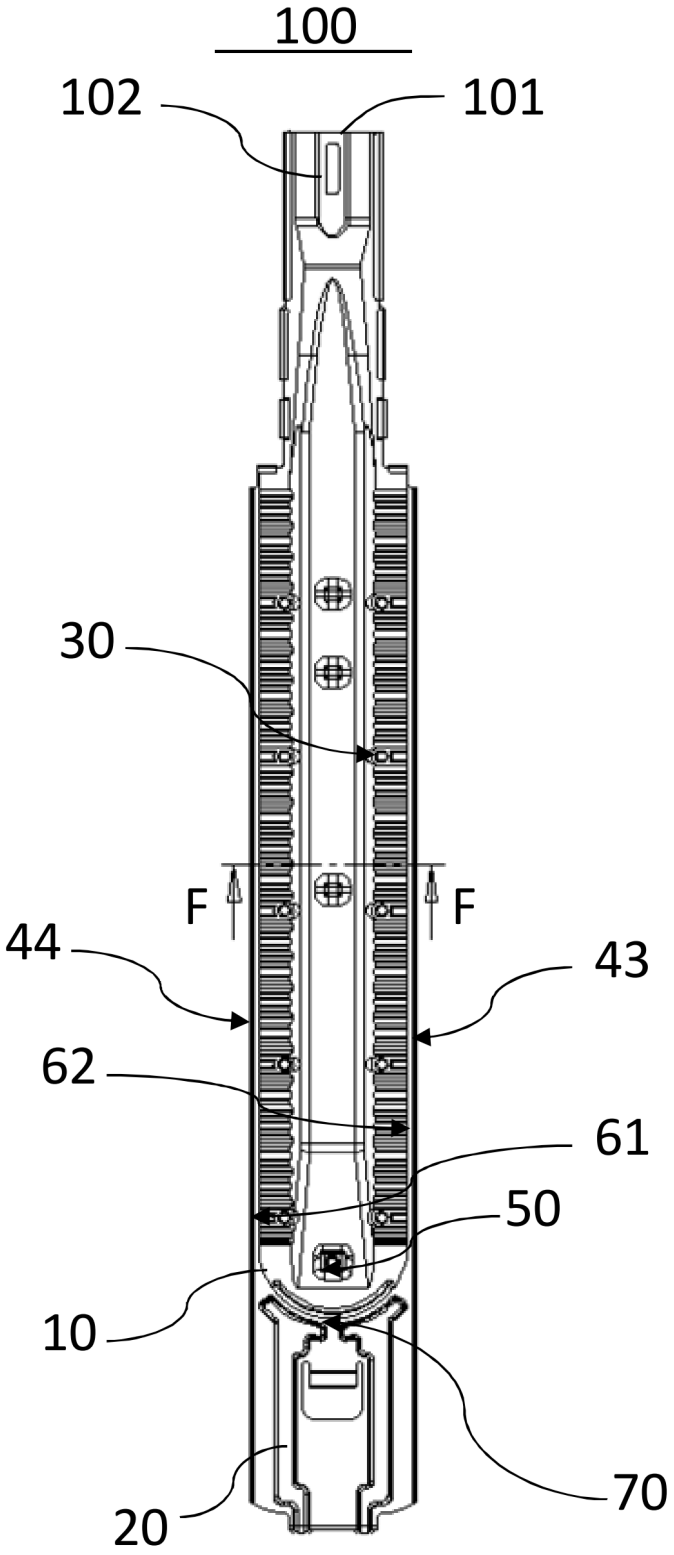


Fig.12

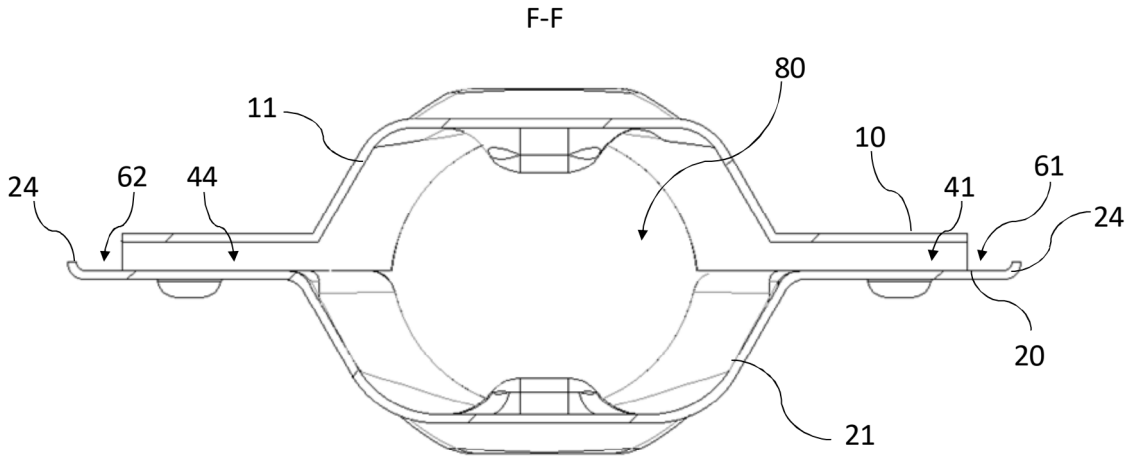


Fig.13

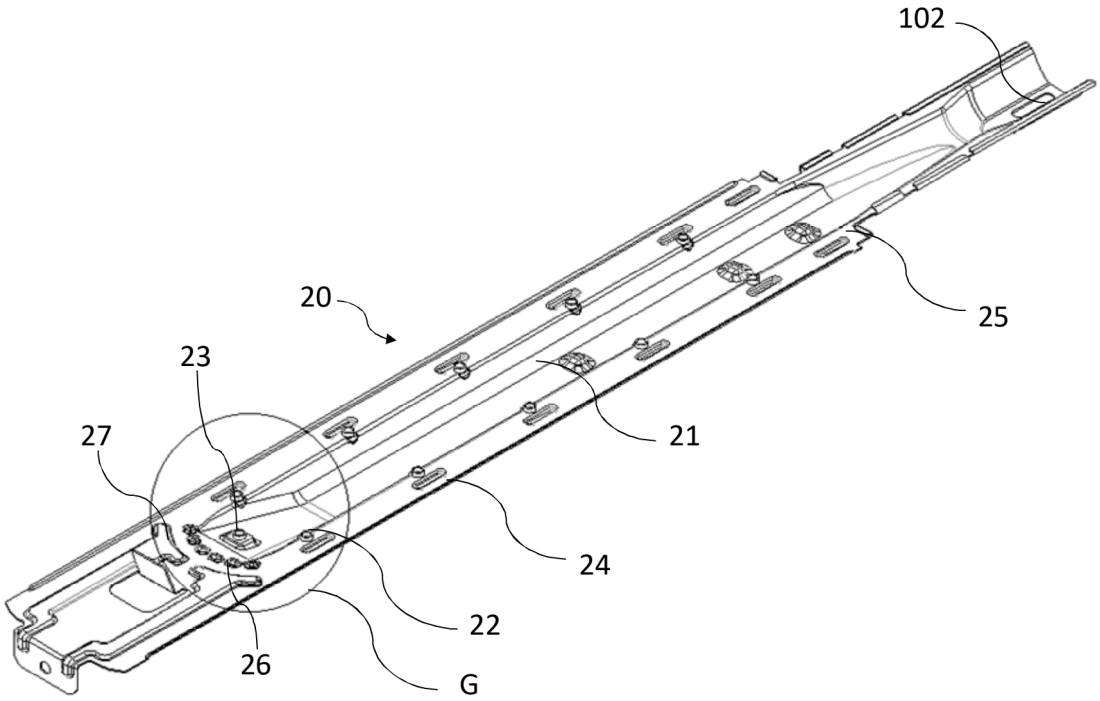


Fig.14

G

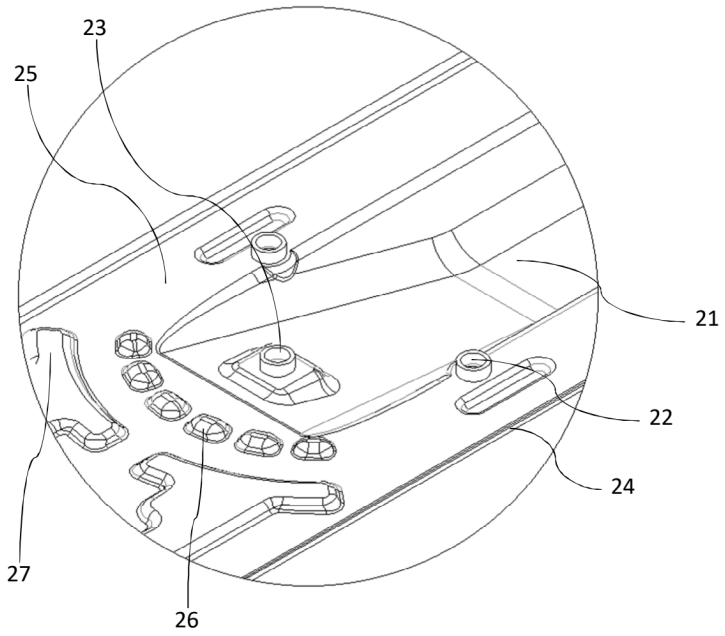


Fig.15

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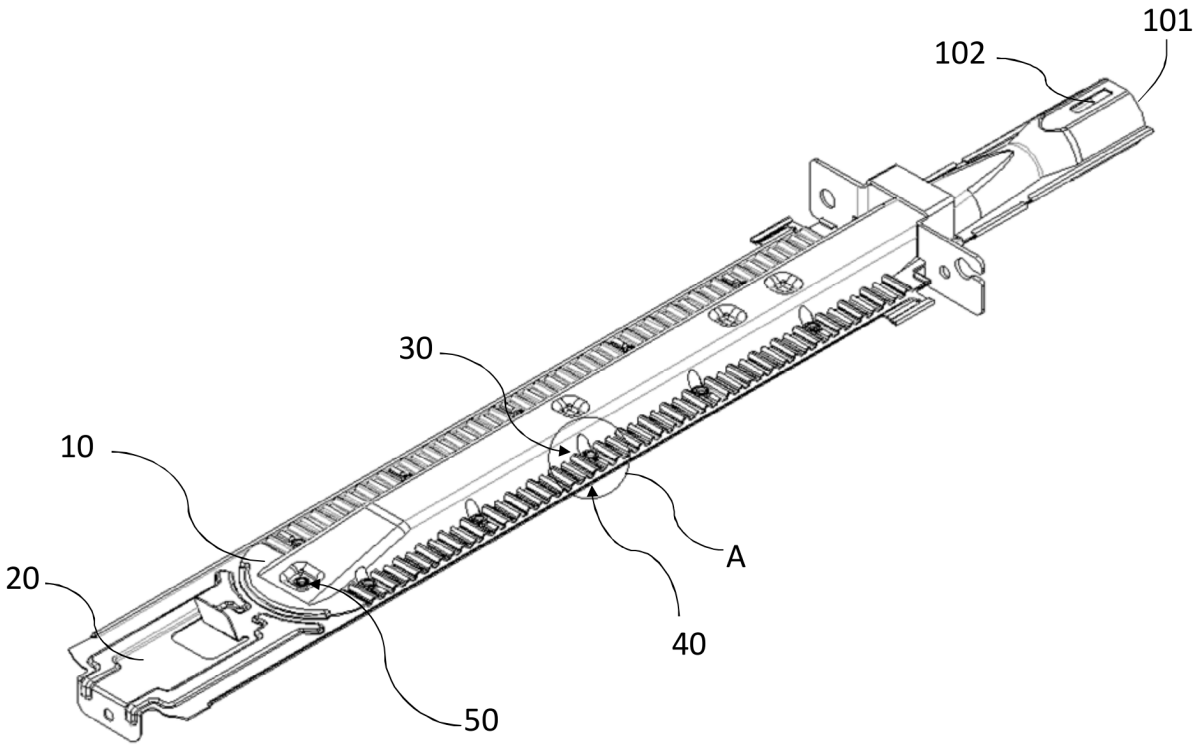



Fig.16

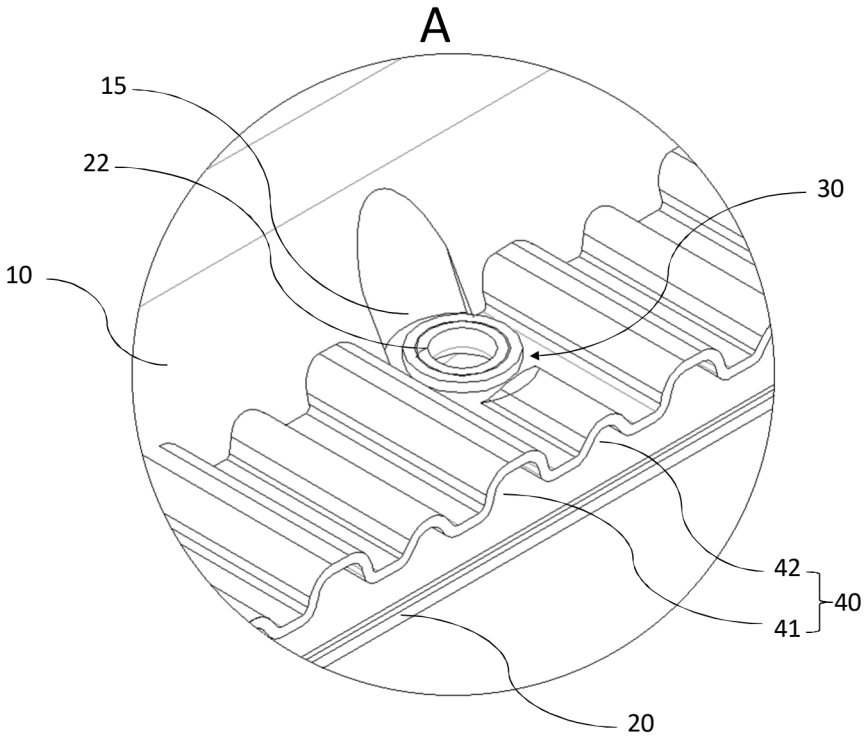



Fig.17

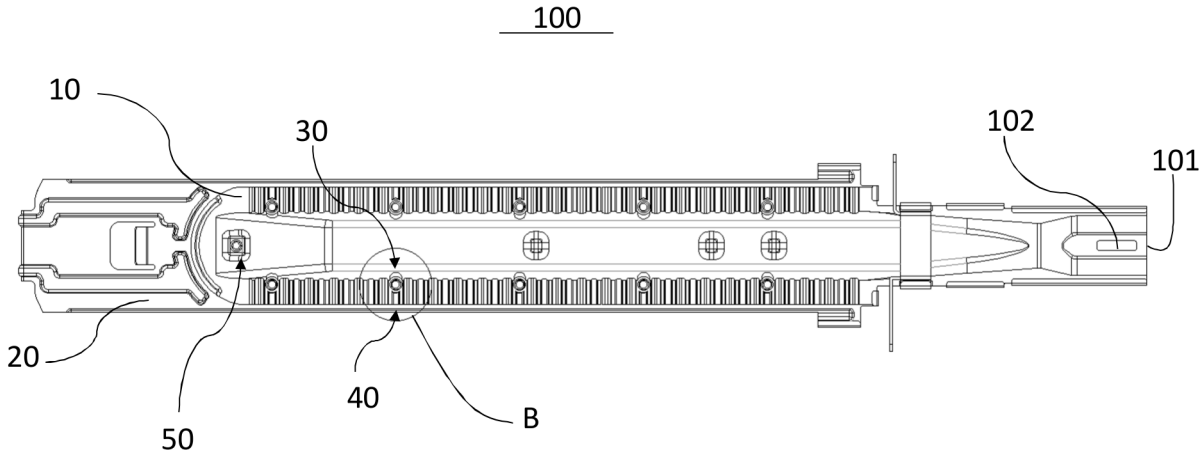



Fig.18

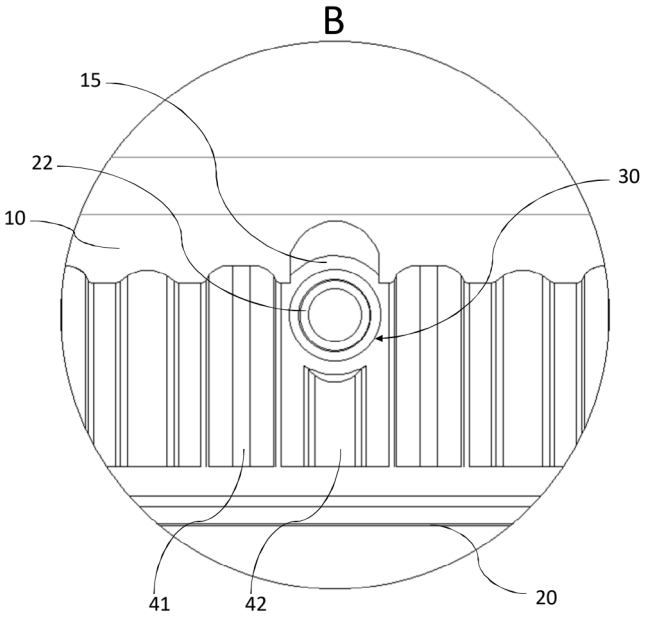



Fig.19

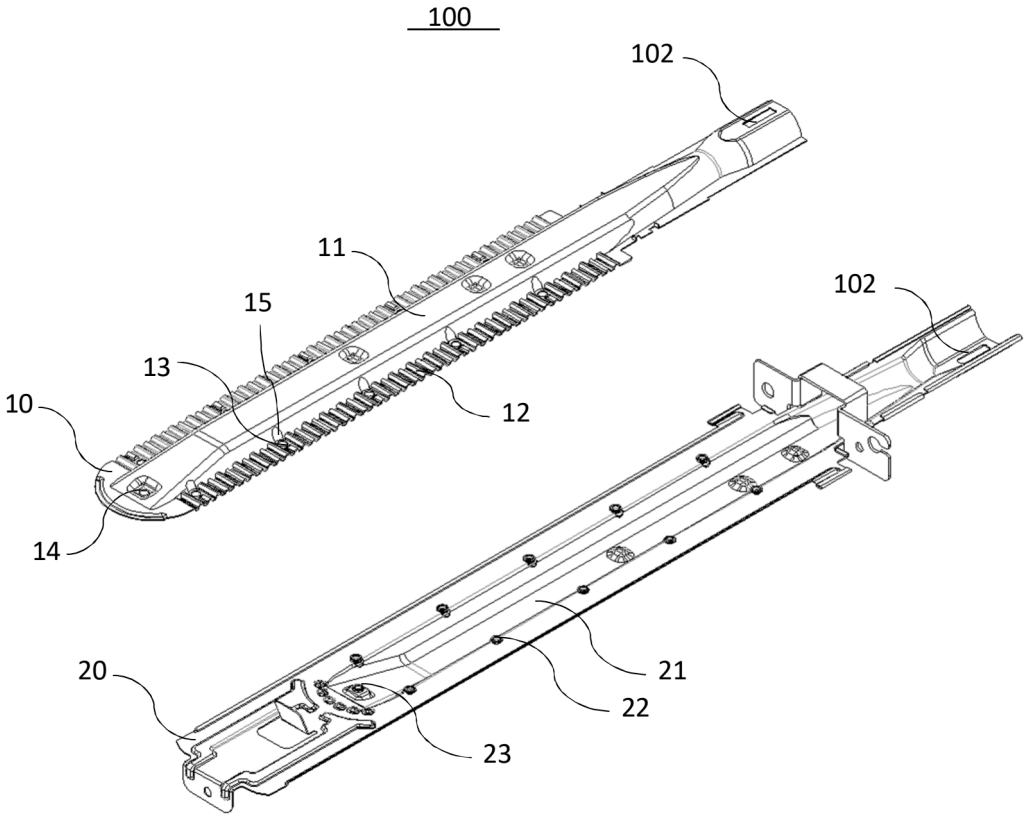



Fig.20

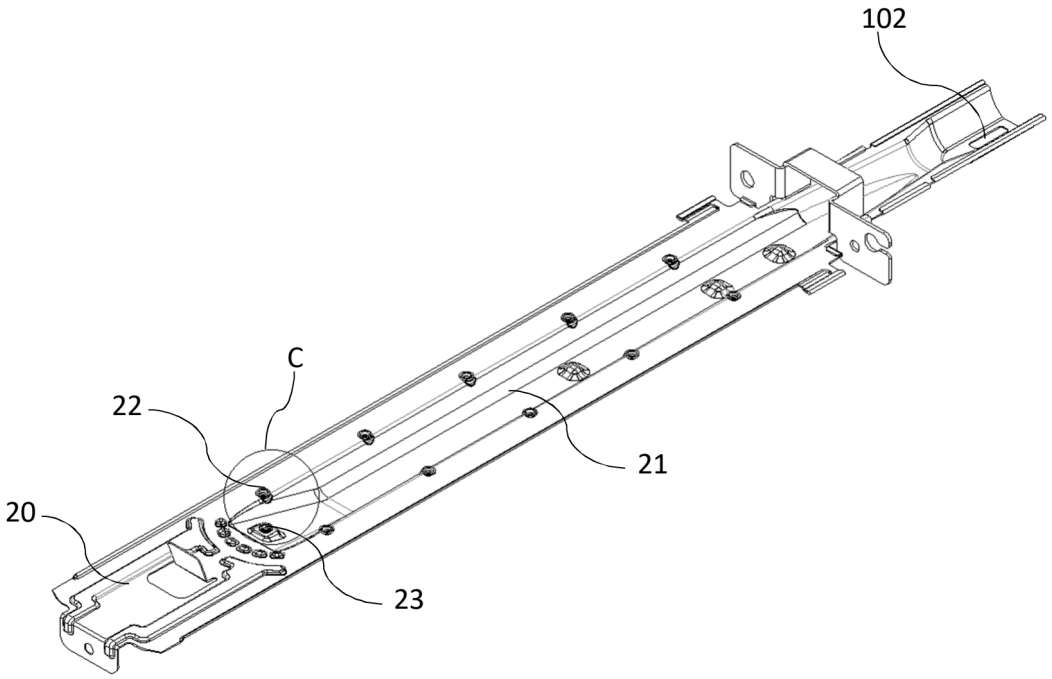



Fig.21

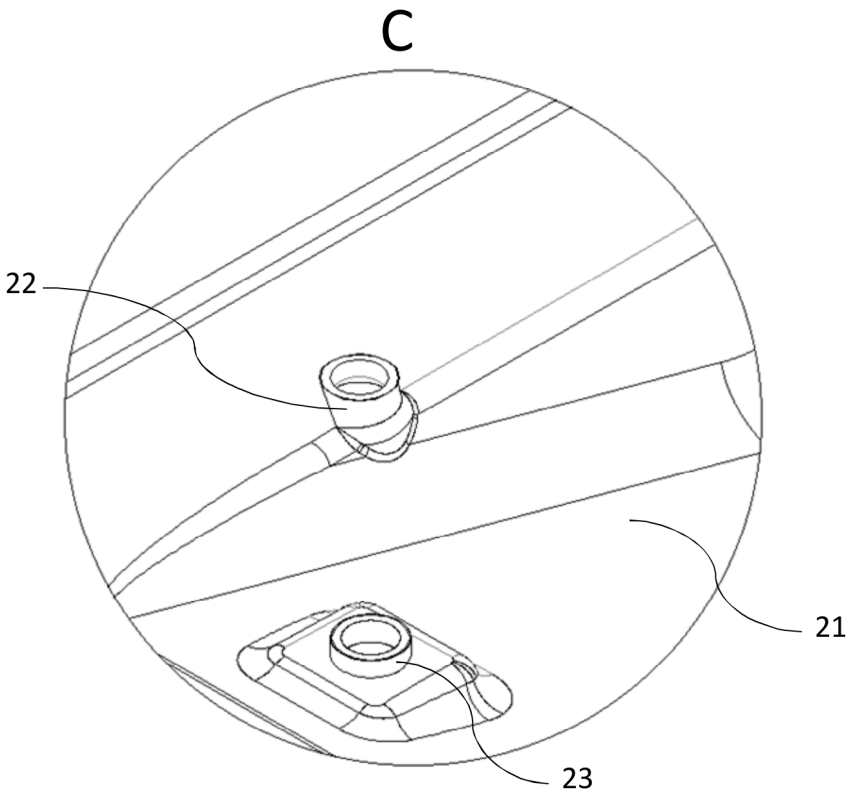



Fig.22

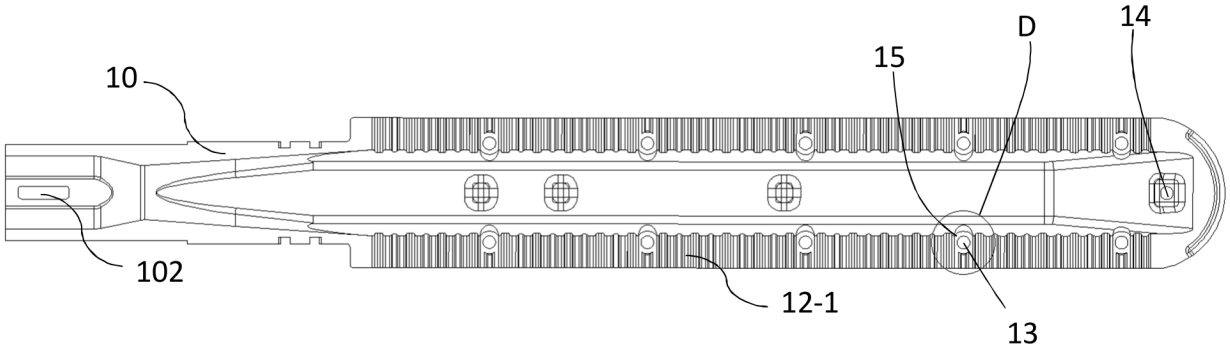



Fig.23

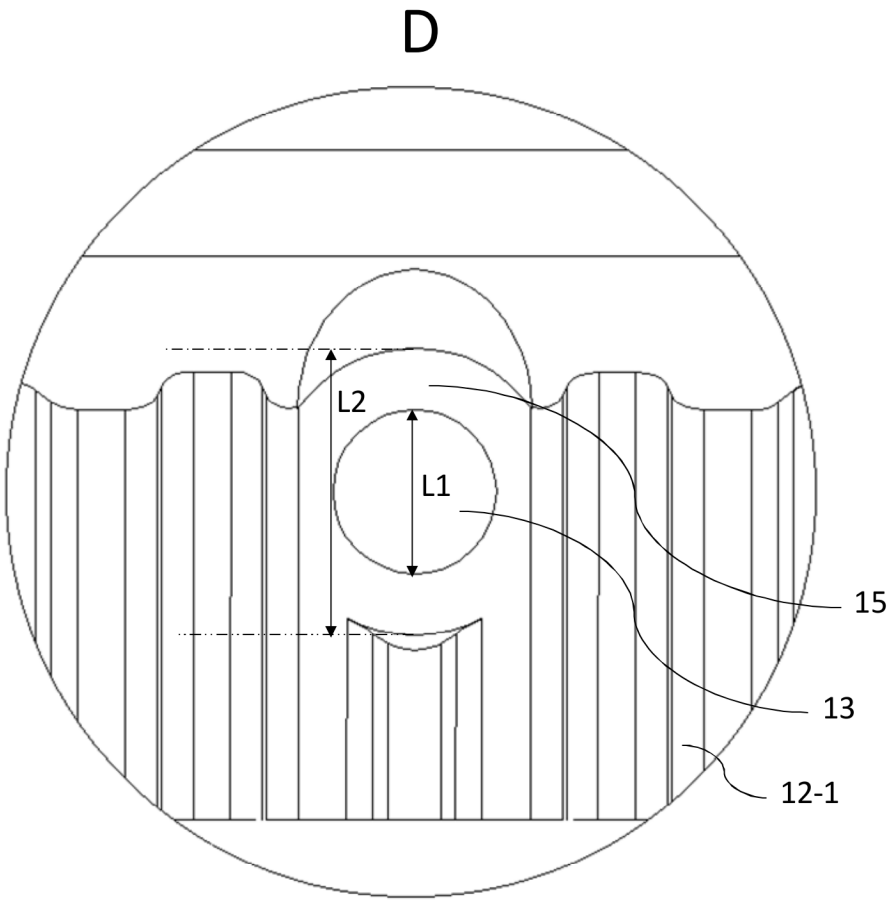



Fig.24

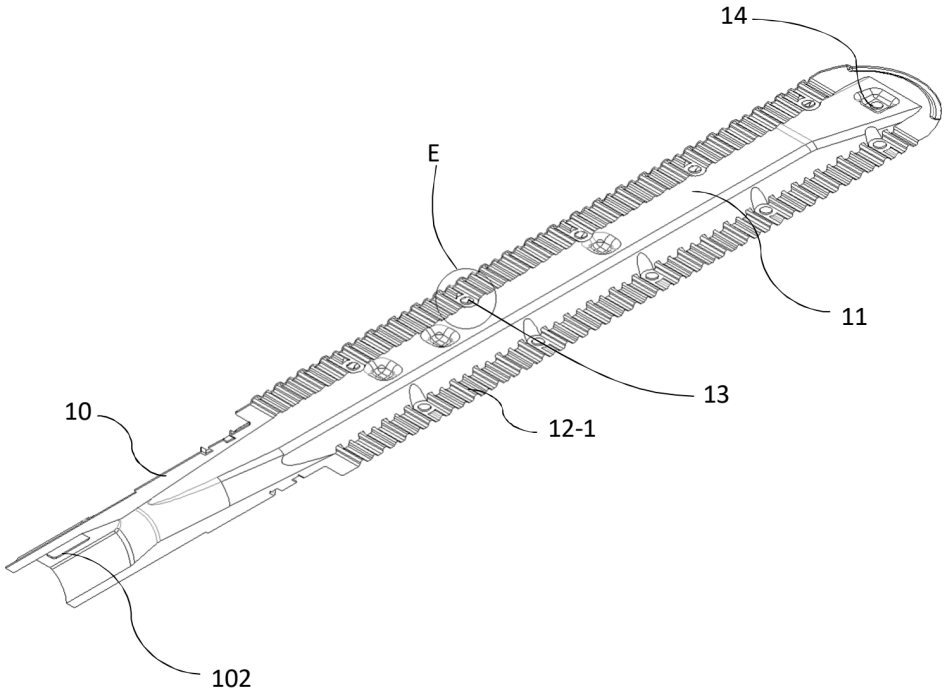



Fig.25

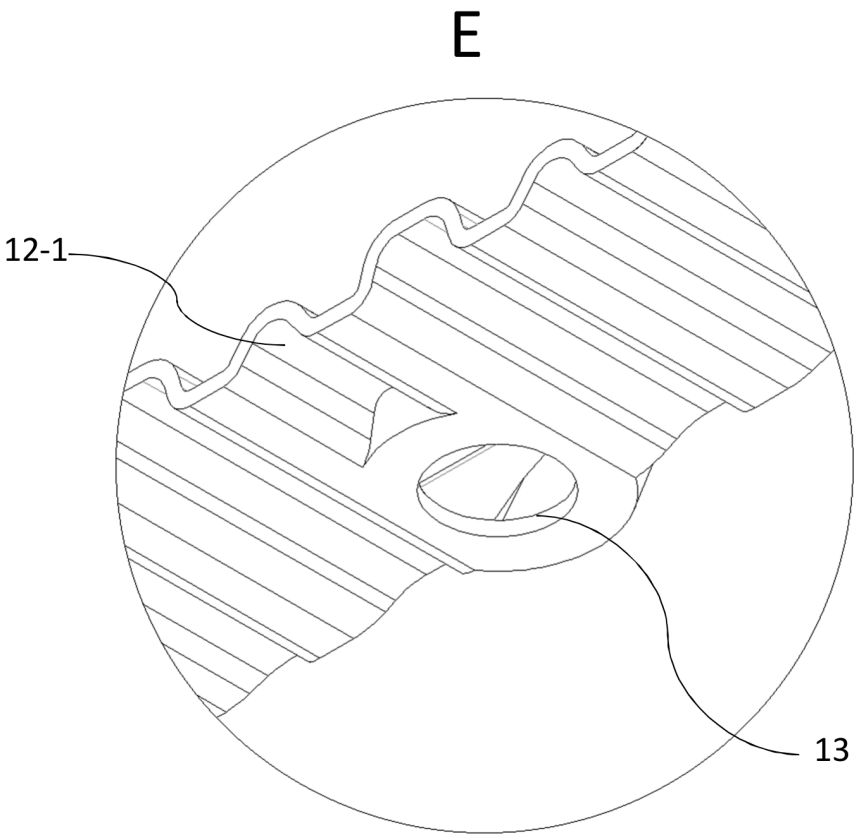
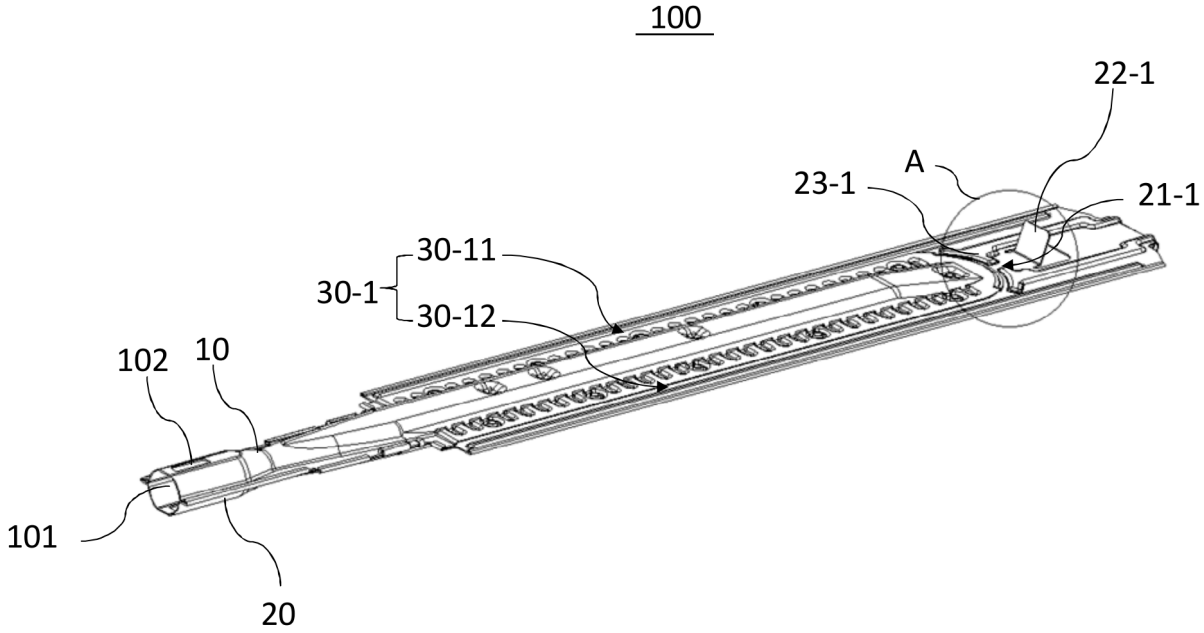



Fig.26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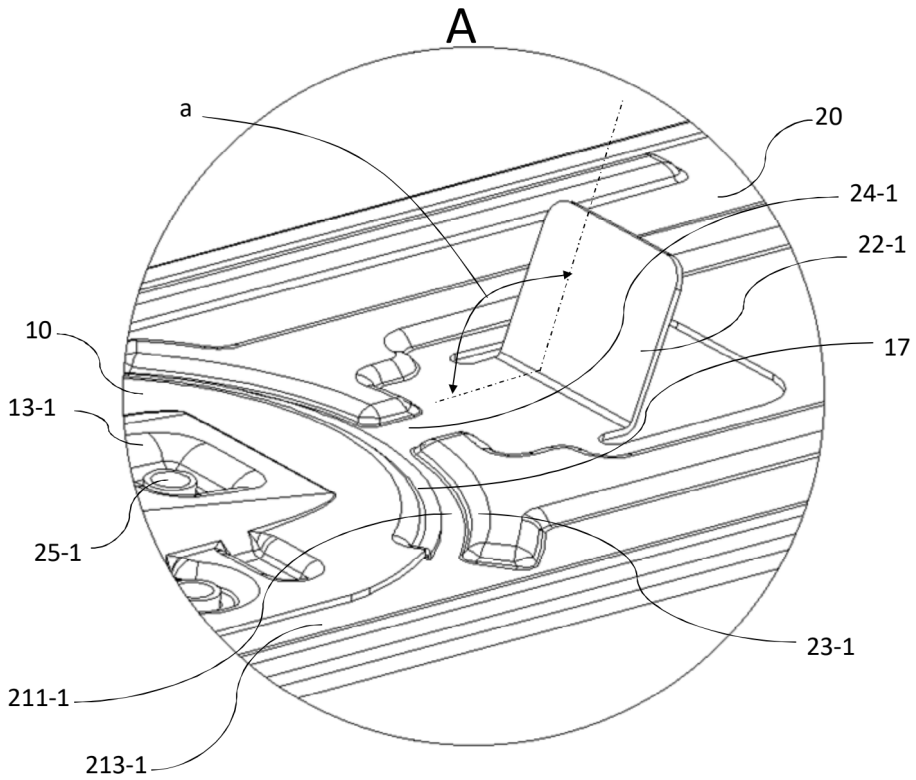
A
23-1
21-1
30-11
30-1
30-12
102
10
101
20

Fig.27


A
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24-1
22-1
10
17
13-1
25-1
23-1
211-1
213-1

Fig.28

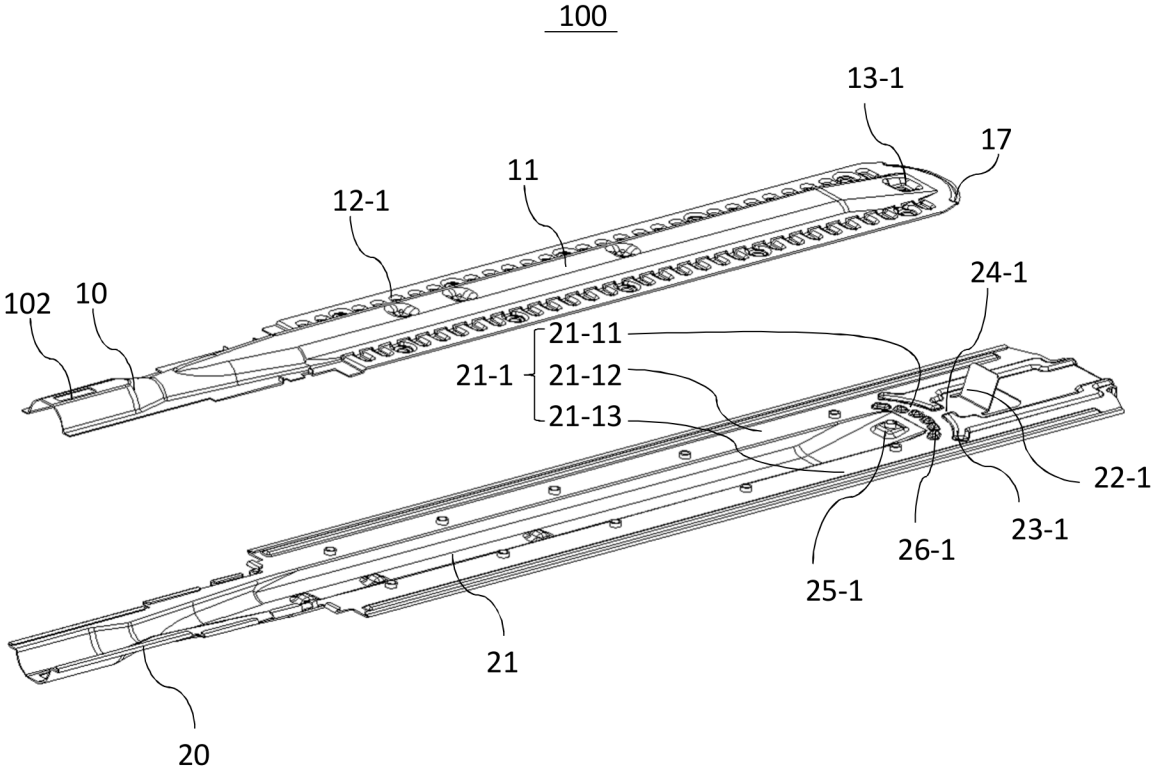
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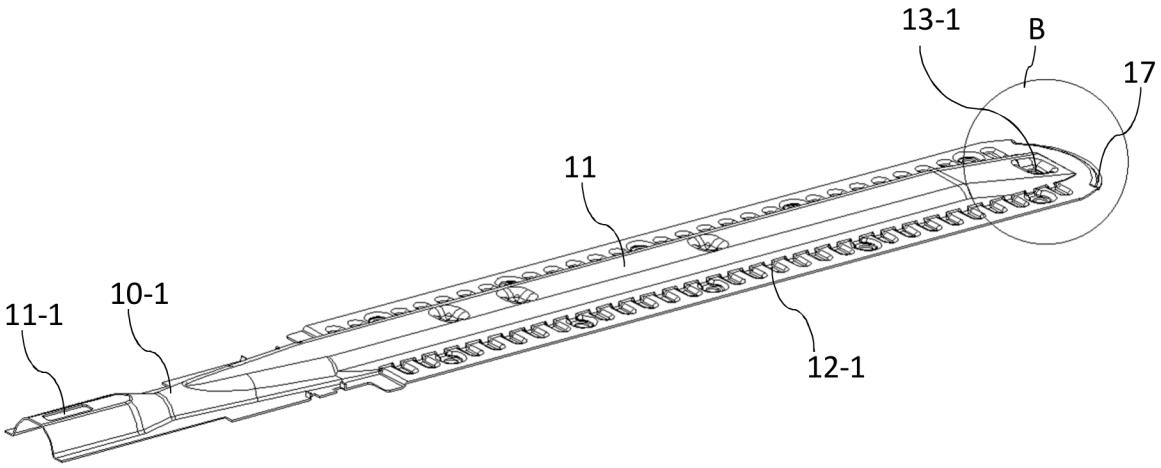
Fig.29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12-1

Fig.30

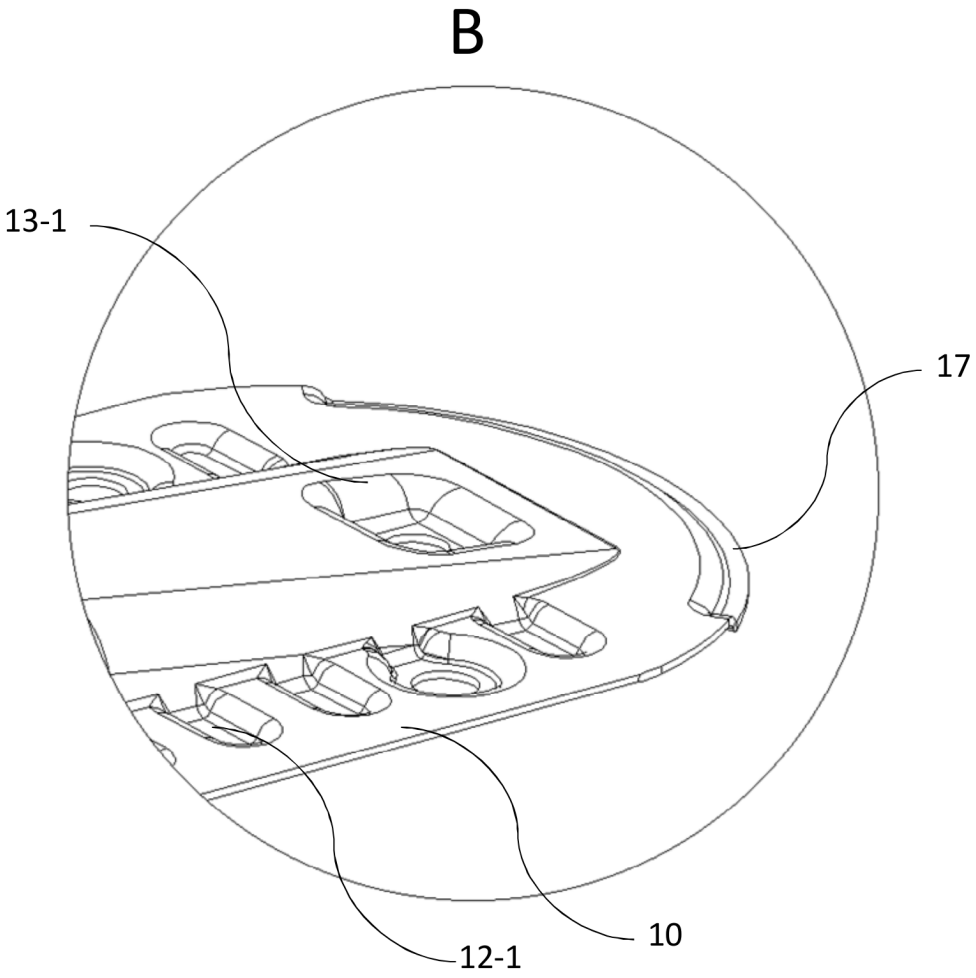
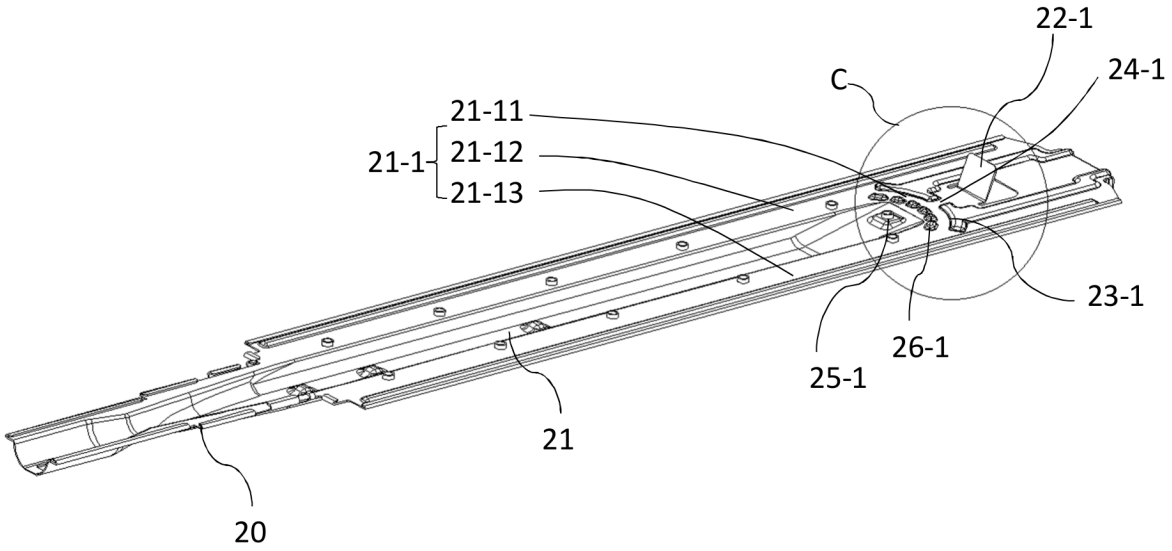



Fig.31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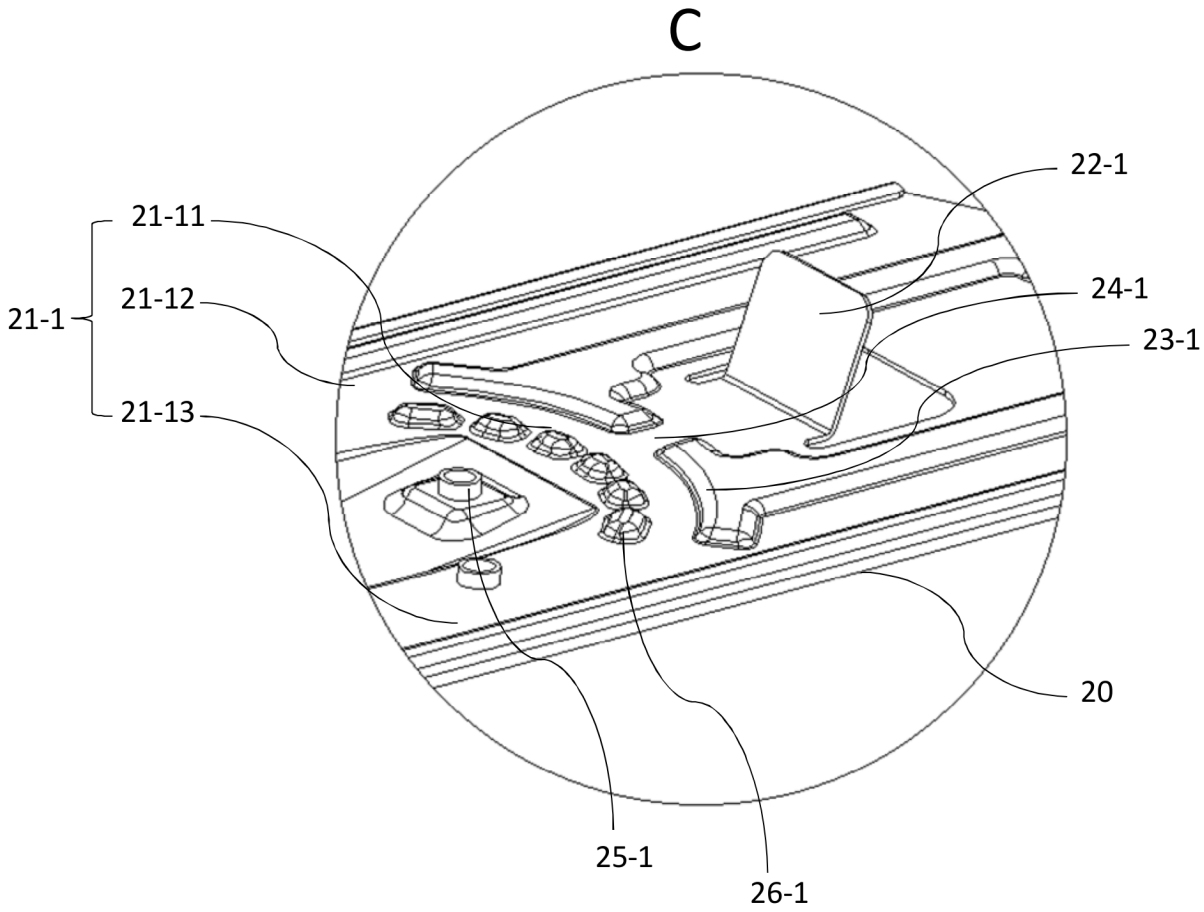
25-1
21
20

Fig.32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26-1

Fig.33

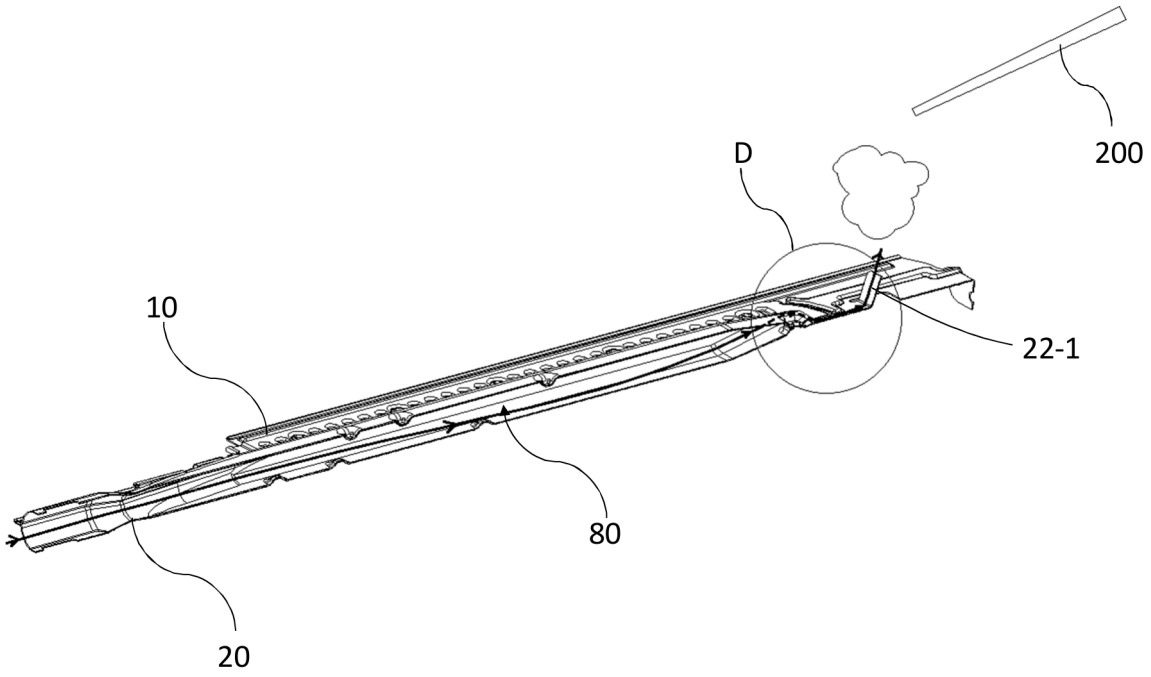


Fig.34

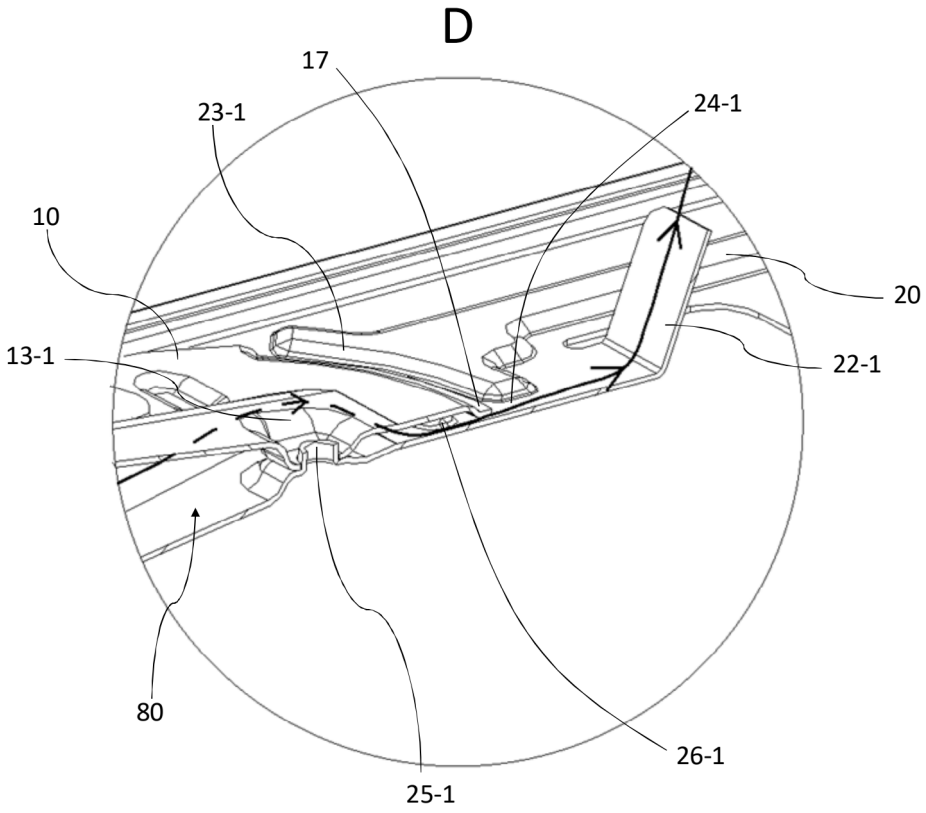


Fig.35

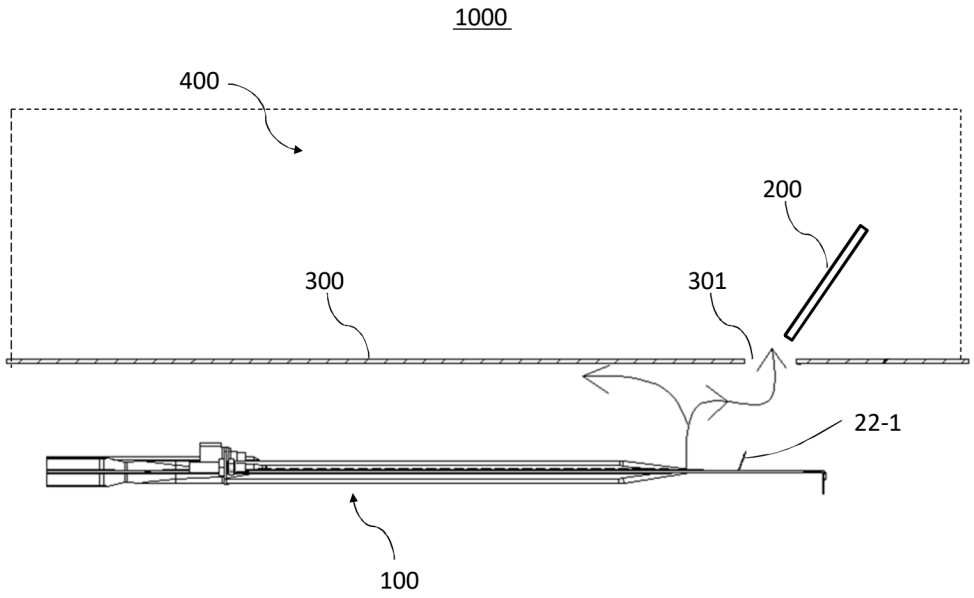
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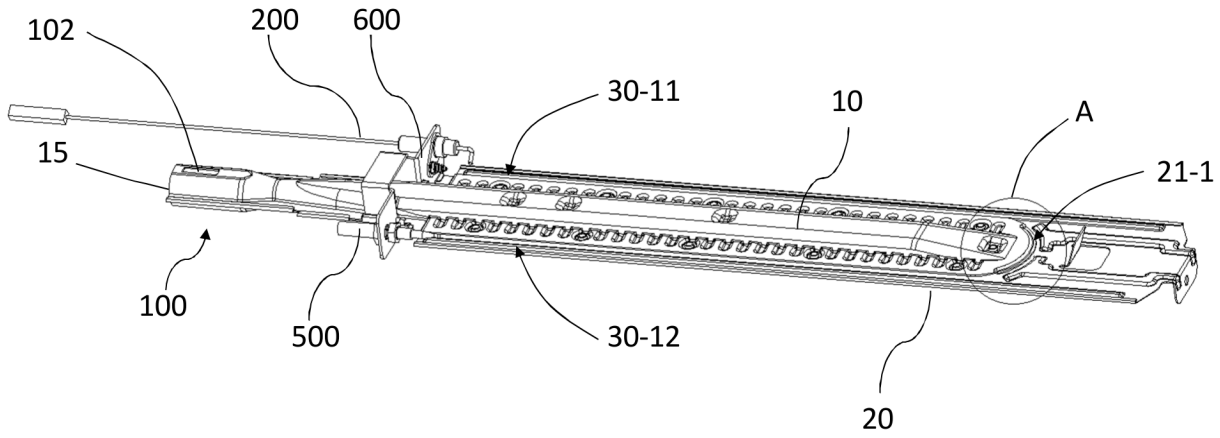
Fig.36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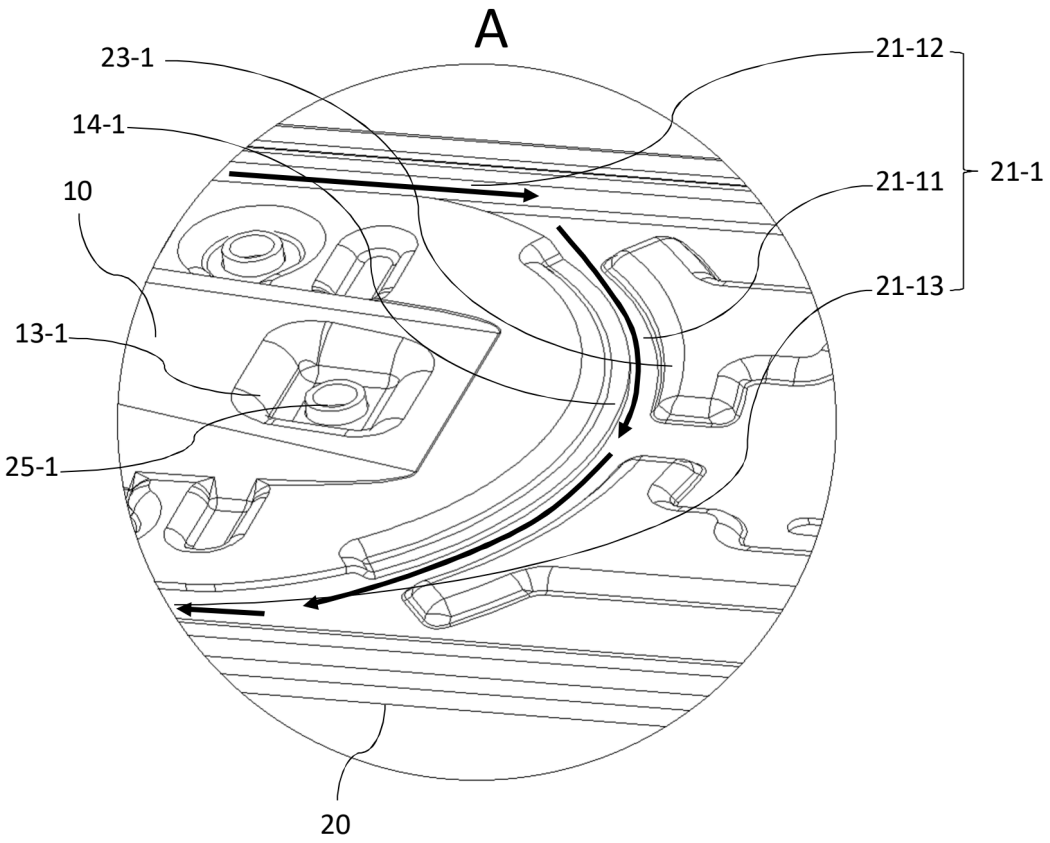
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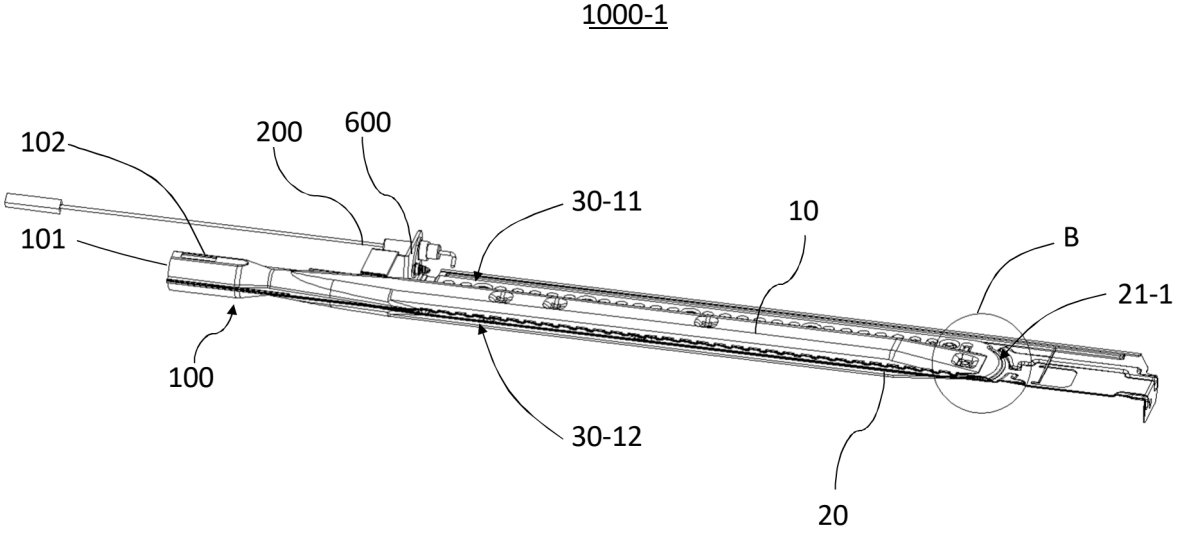
21-1

Fig.38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10
B
21-1
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Fig.39

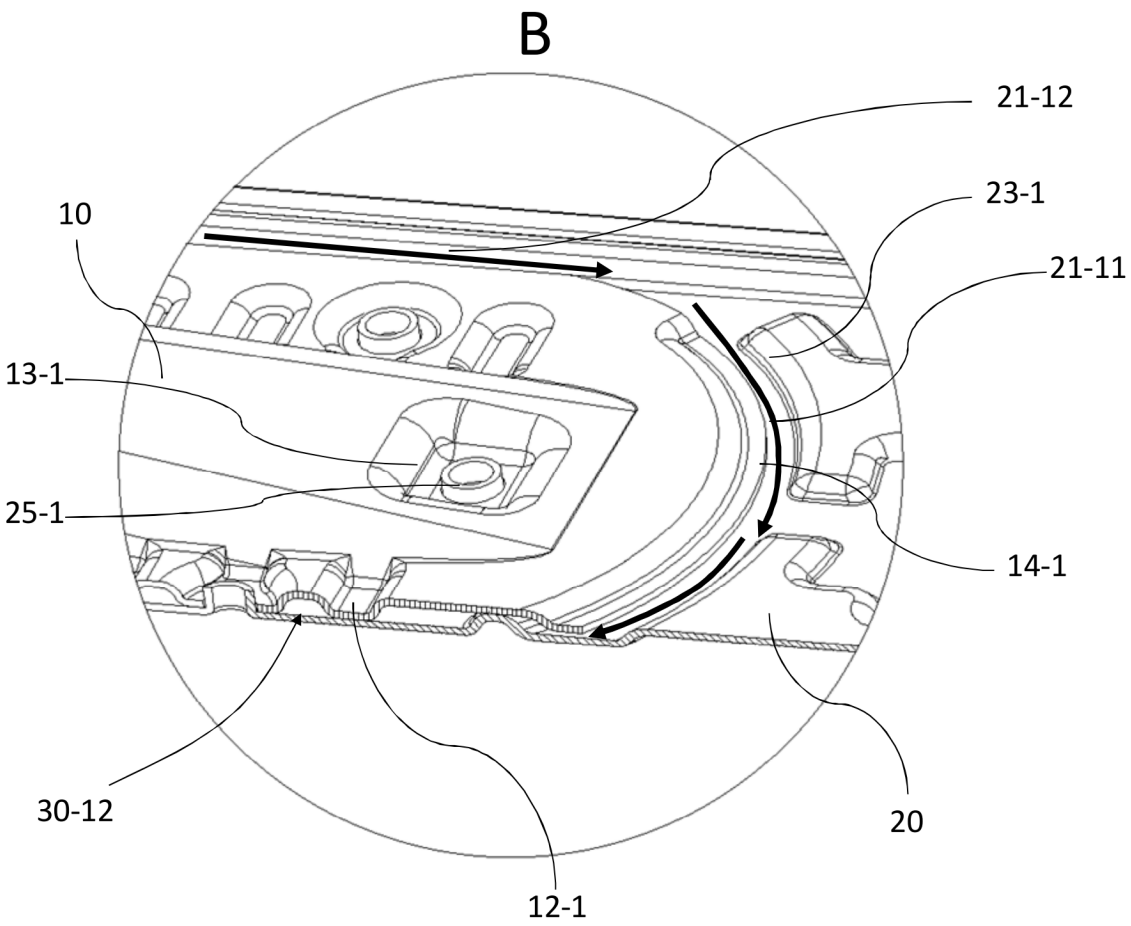
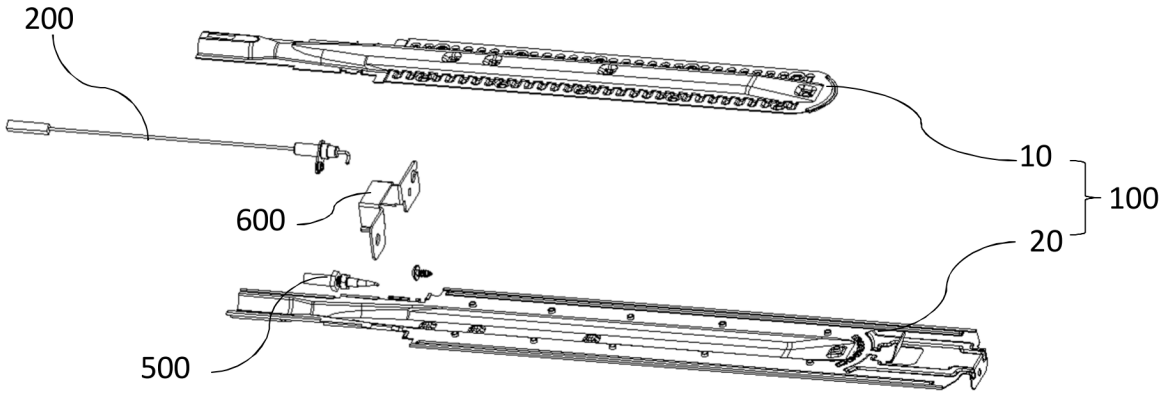



Fig.40

1000-1

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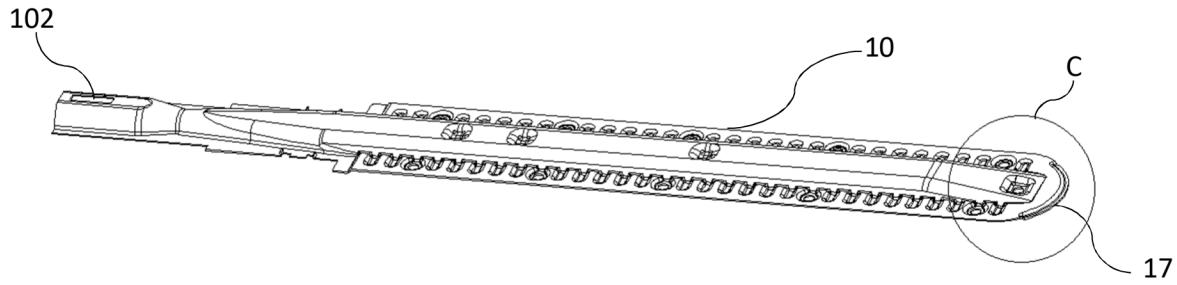


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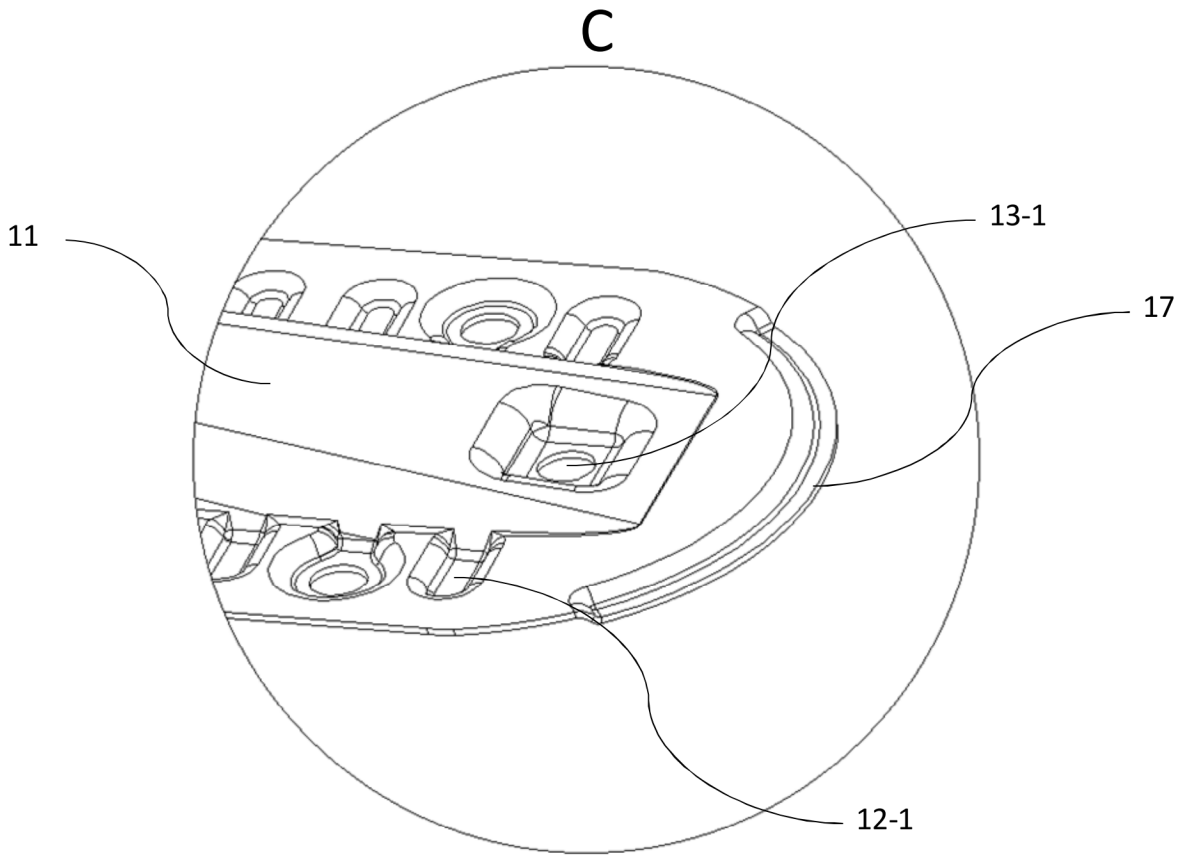
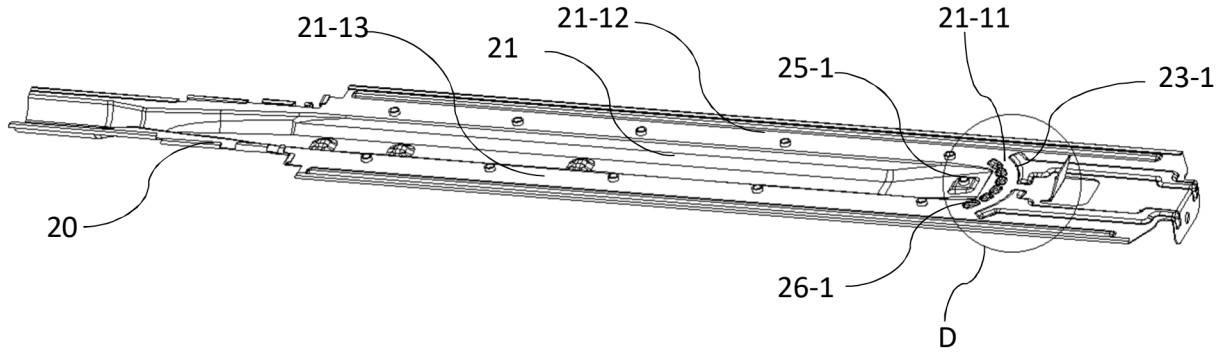



Fig.43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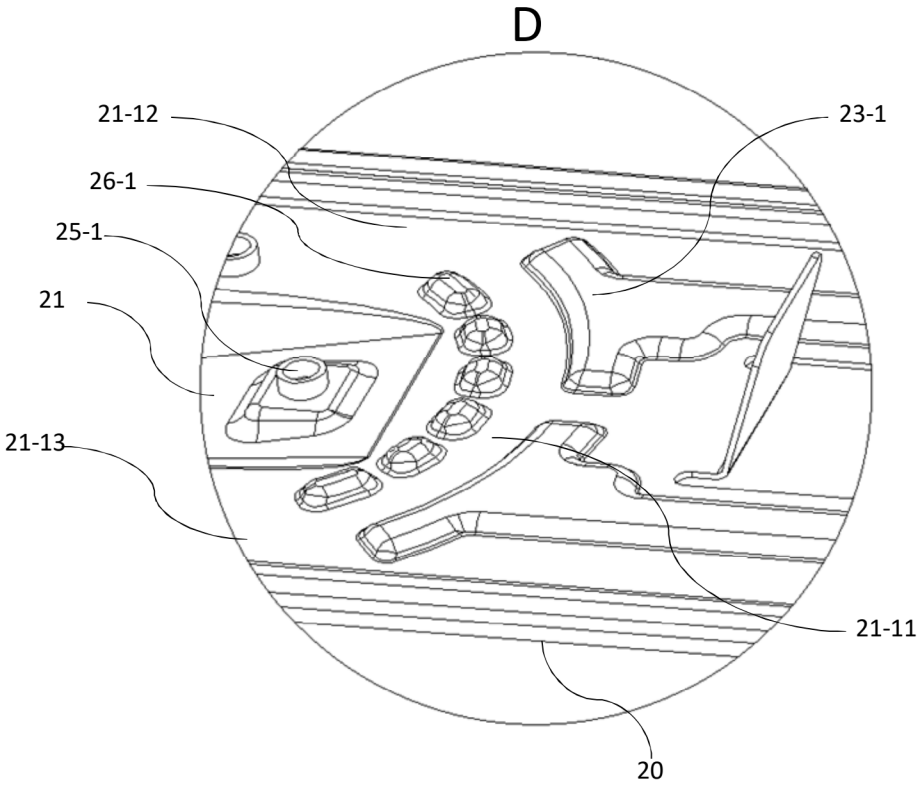
26-1
D

Fig.44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25-1
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21-13
21-11
20

Fig.45

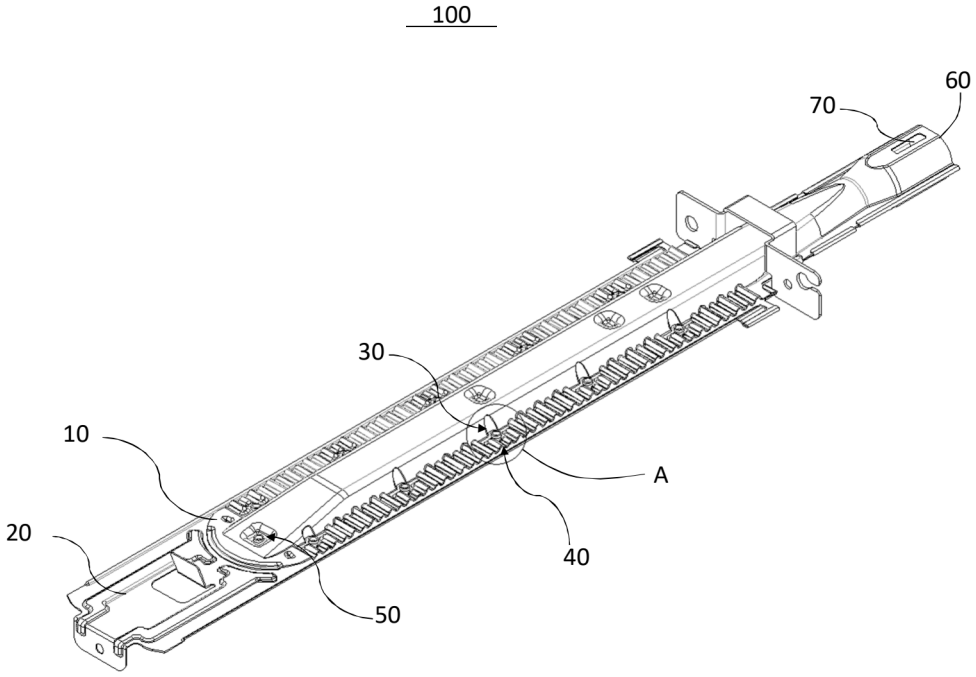



Fig.46

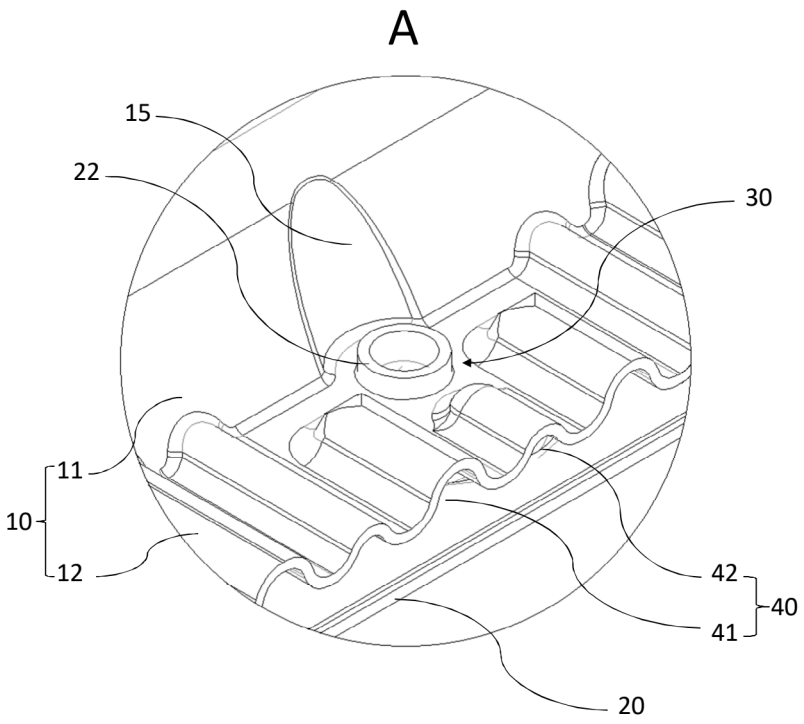



Fig.47

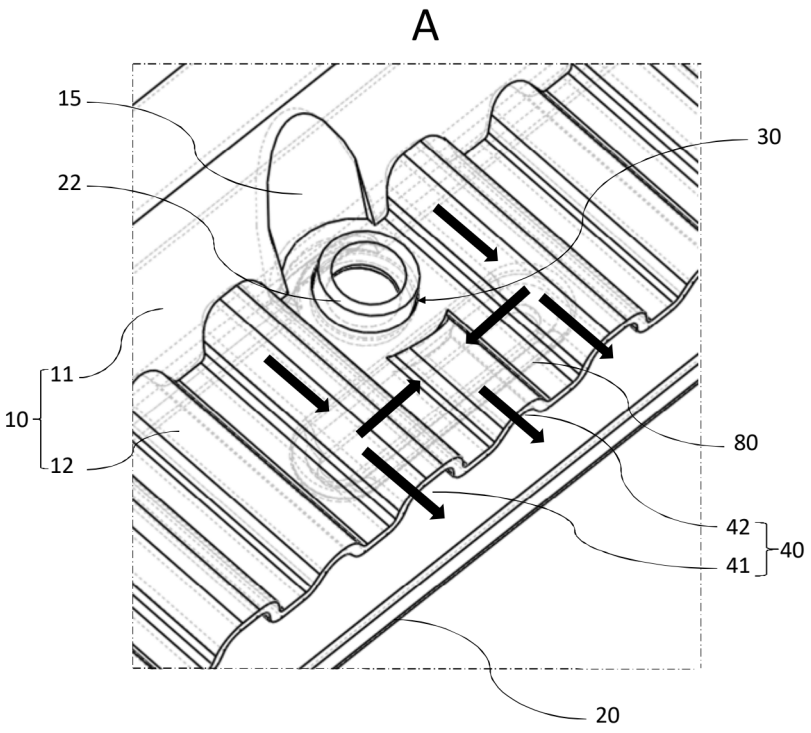



Fig.48

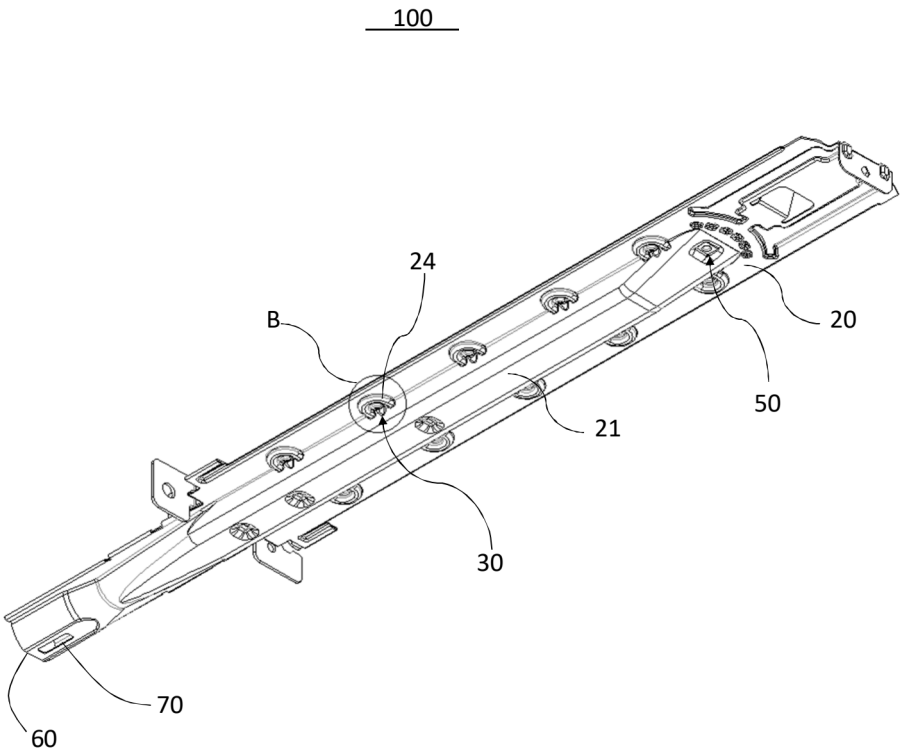



Fig.49

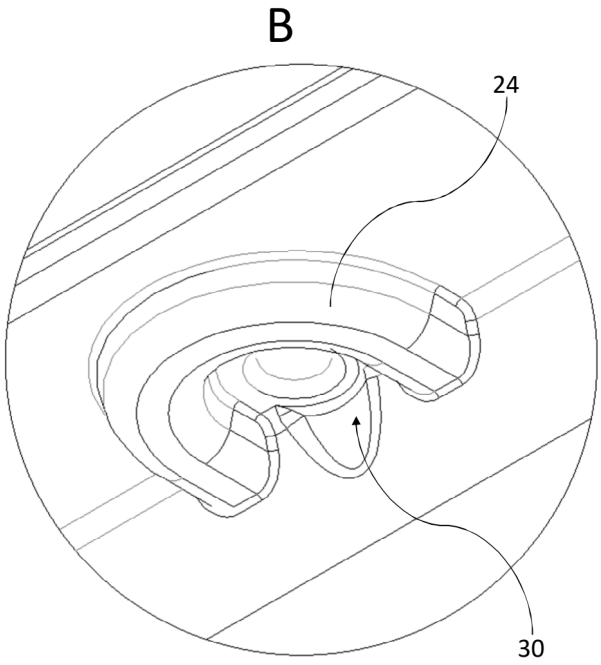



Fig.50

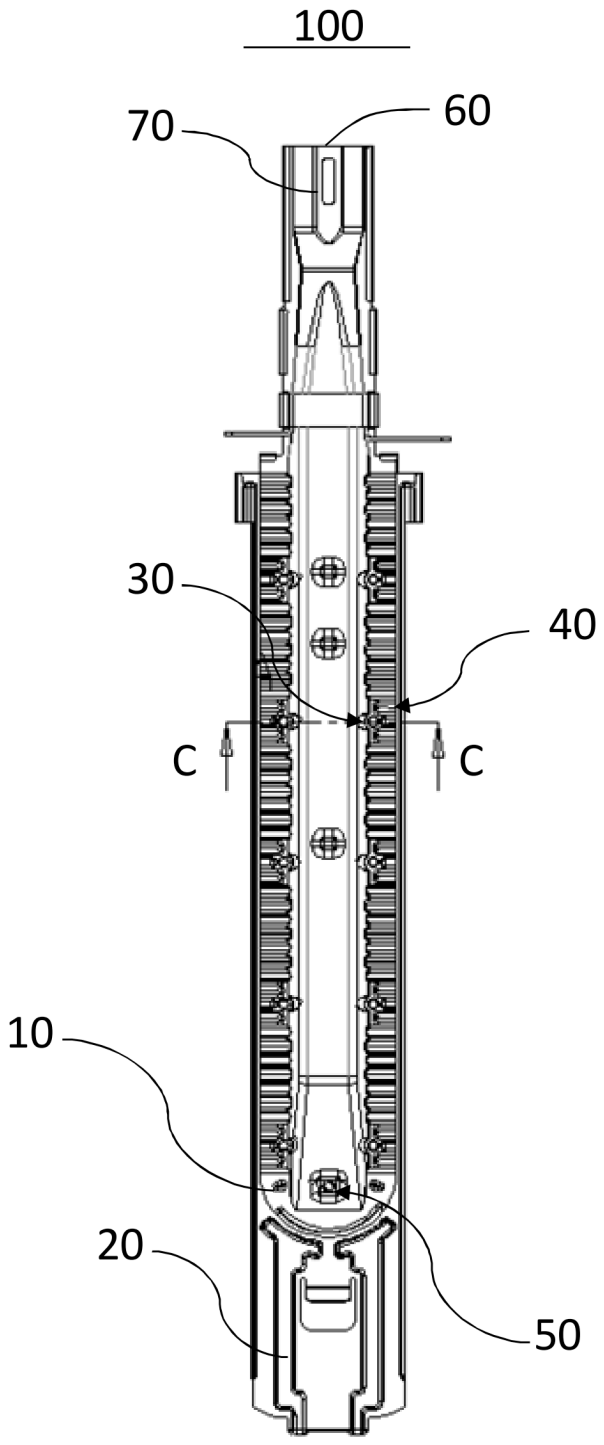



Fig.51

C-C

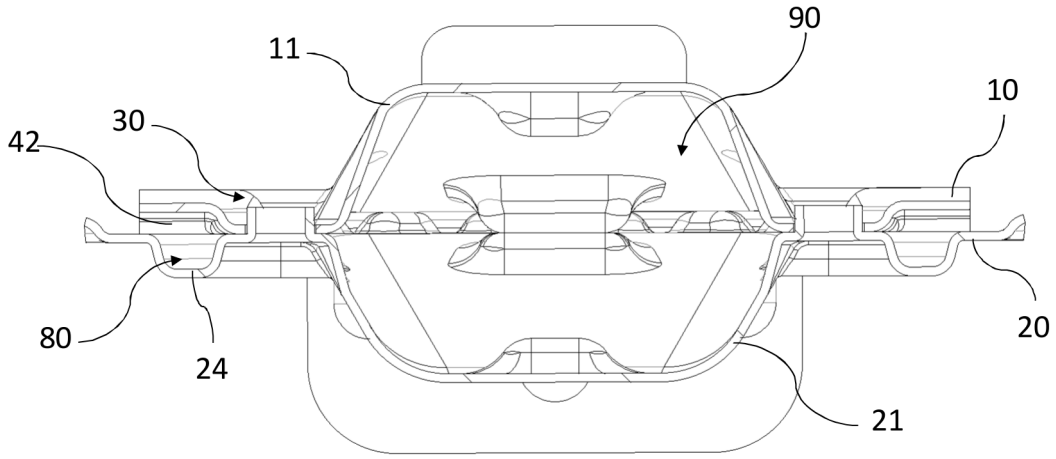



Fig.52

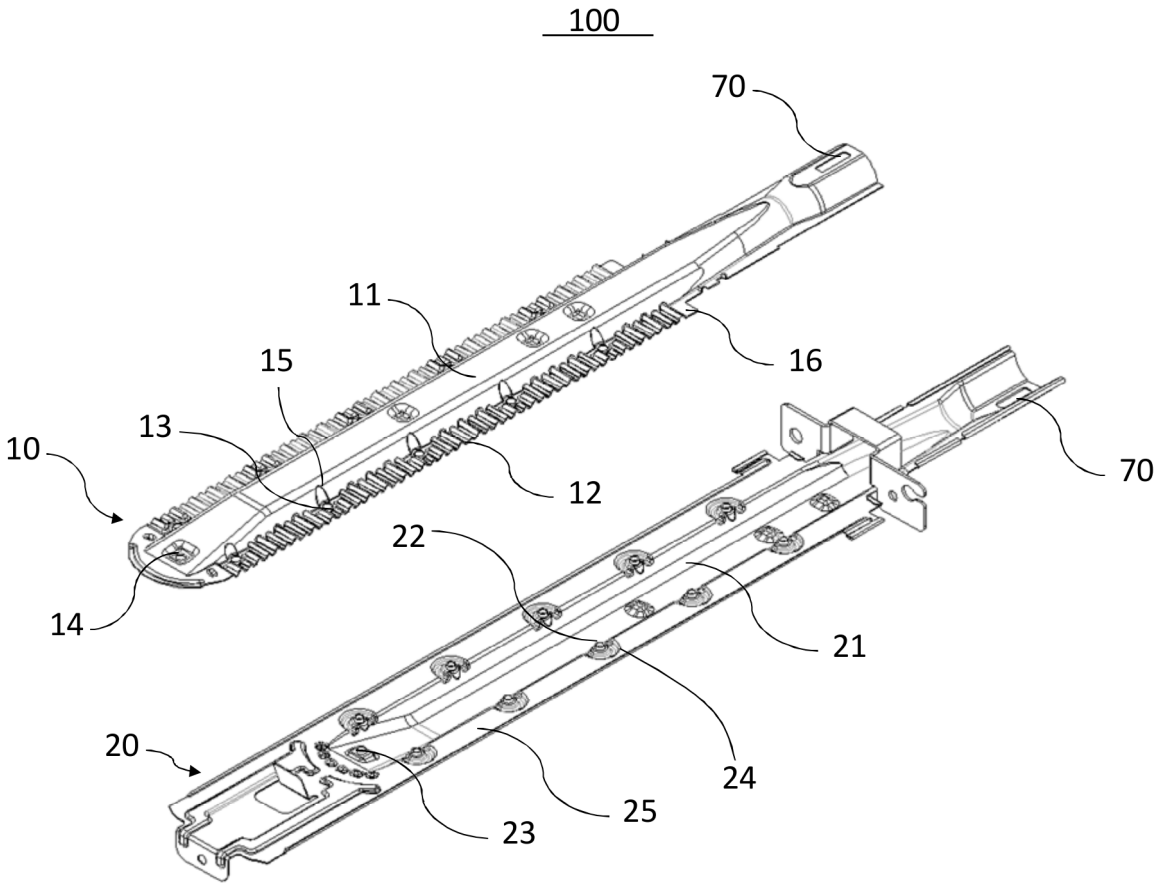



Fig.53

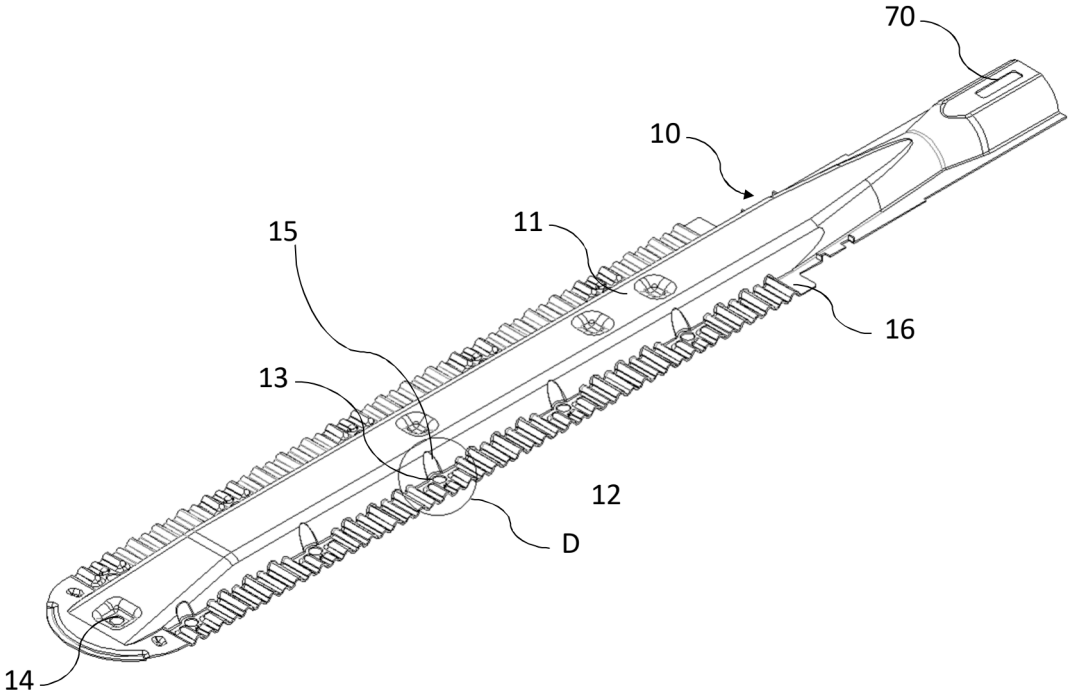



Fig.54

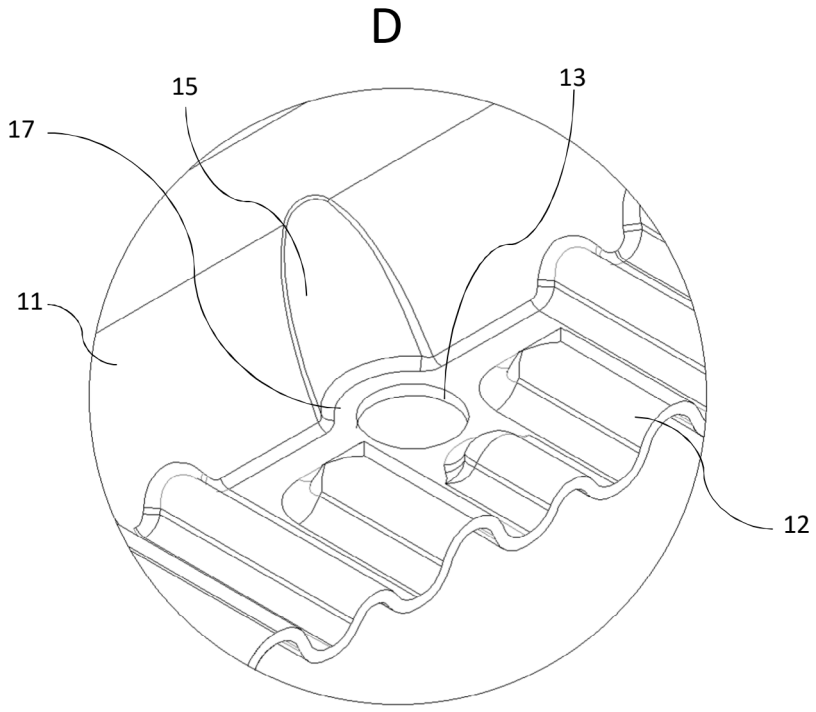



Fig.55

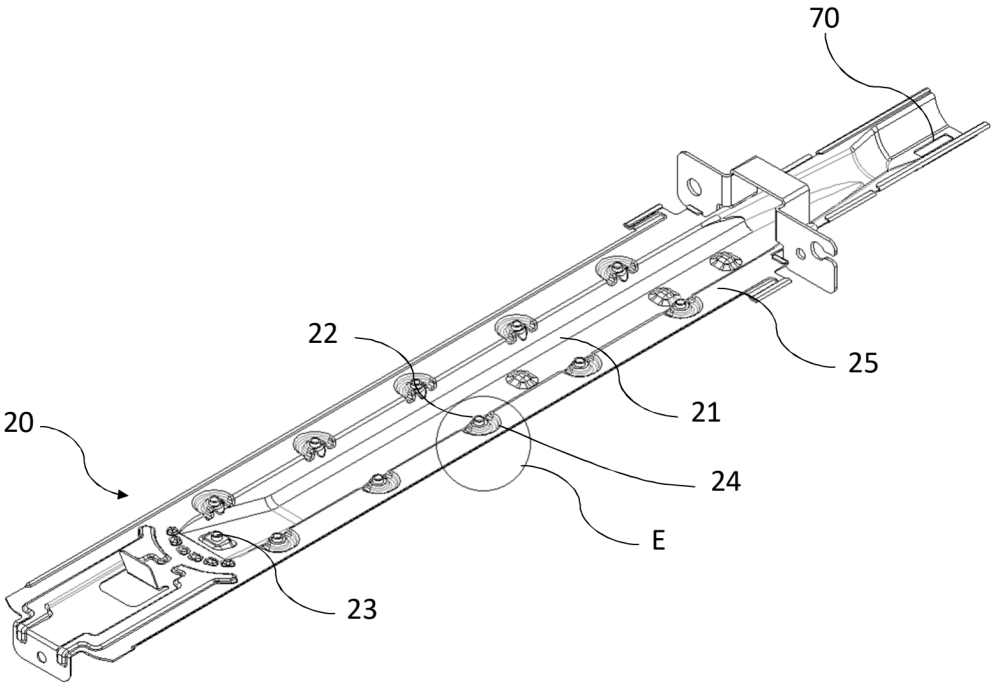
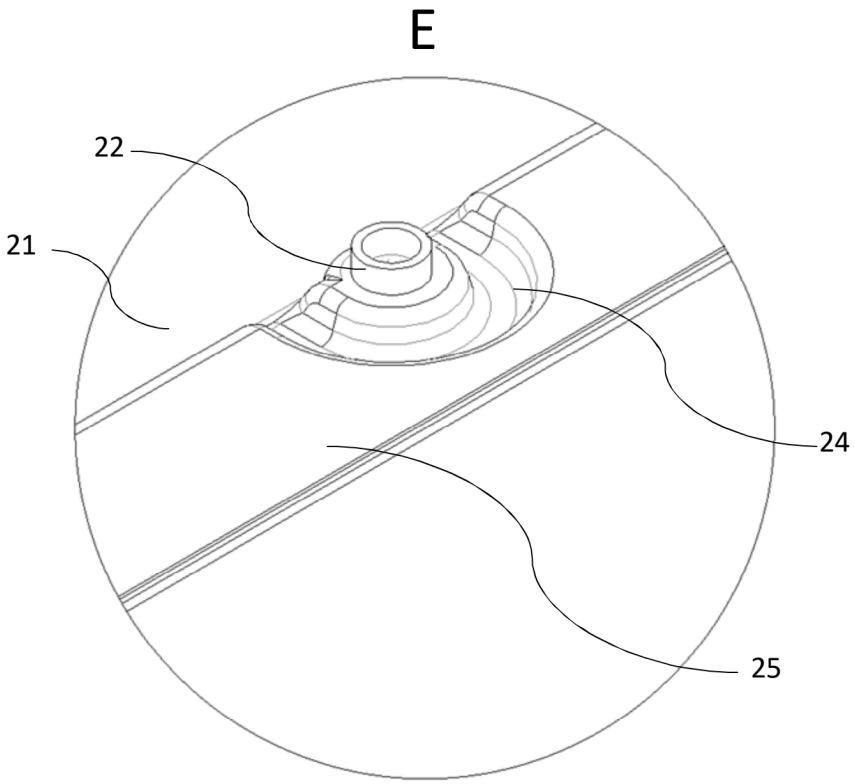



Fig.56

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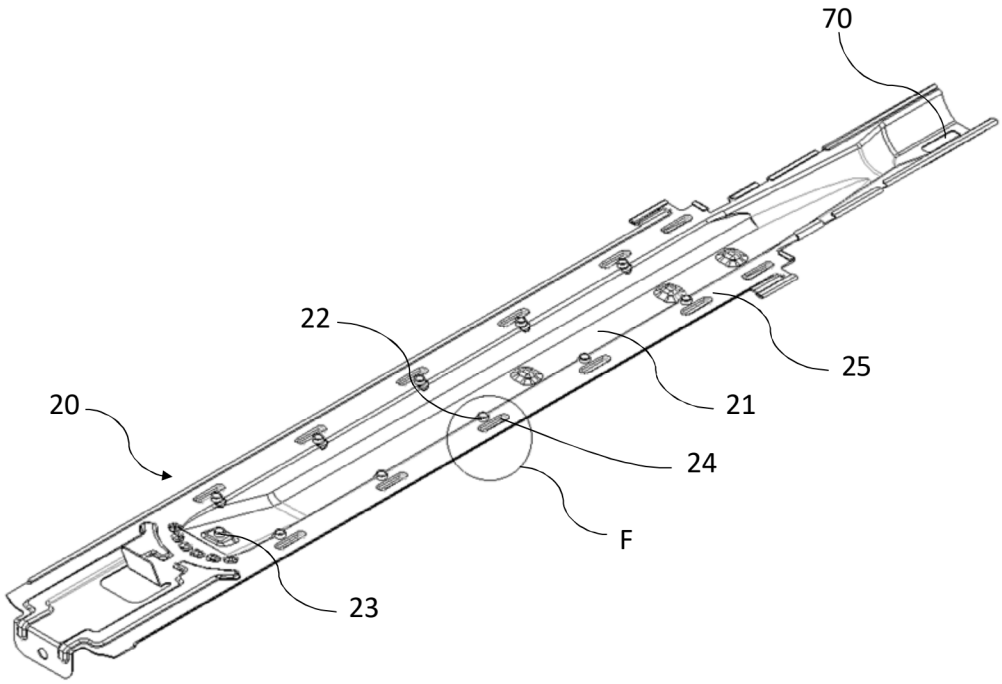


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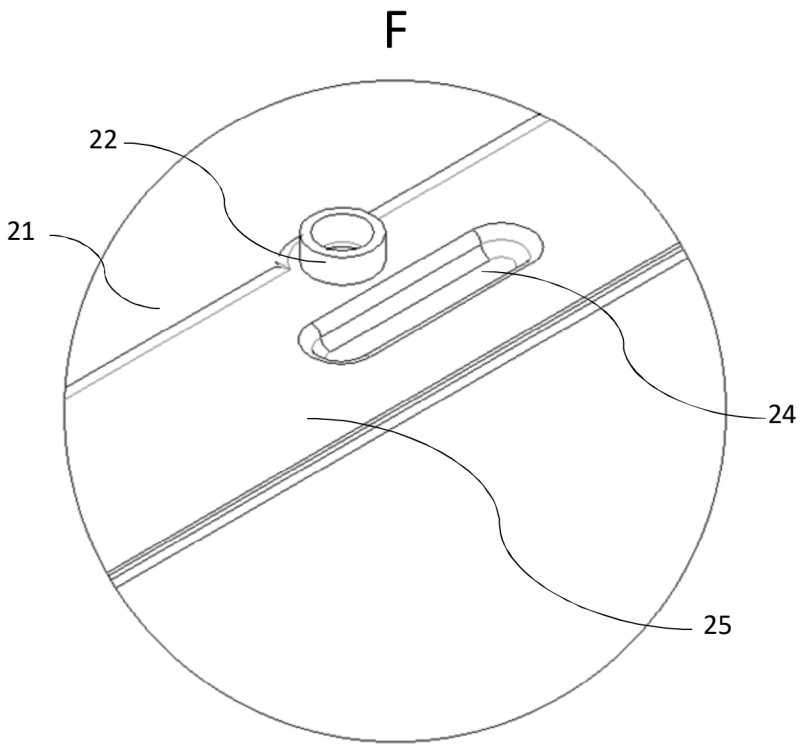


Fig.59

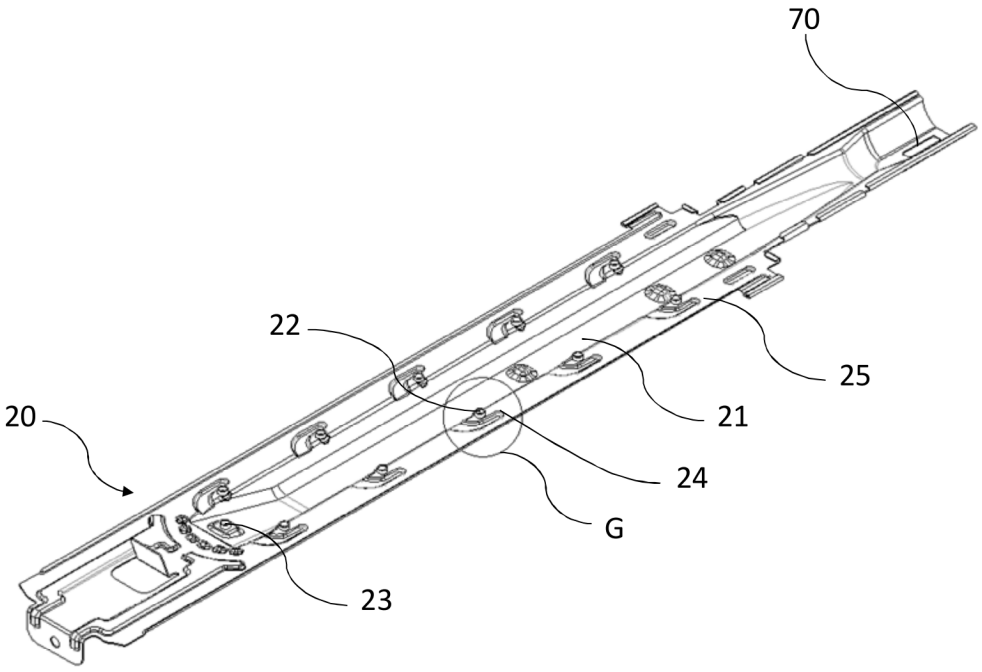


Fig.60

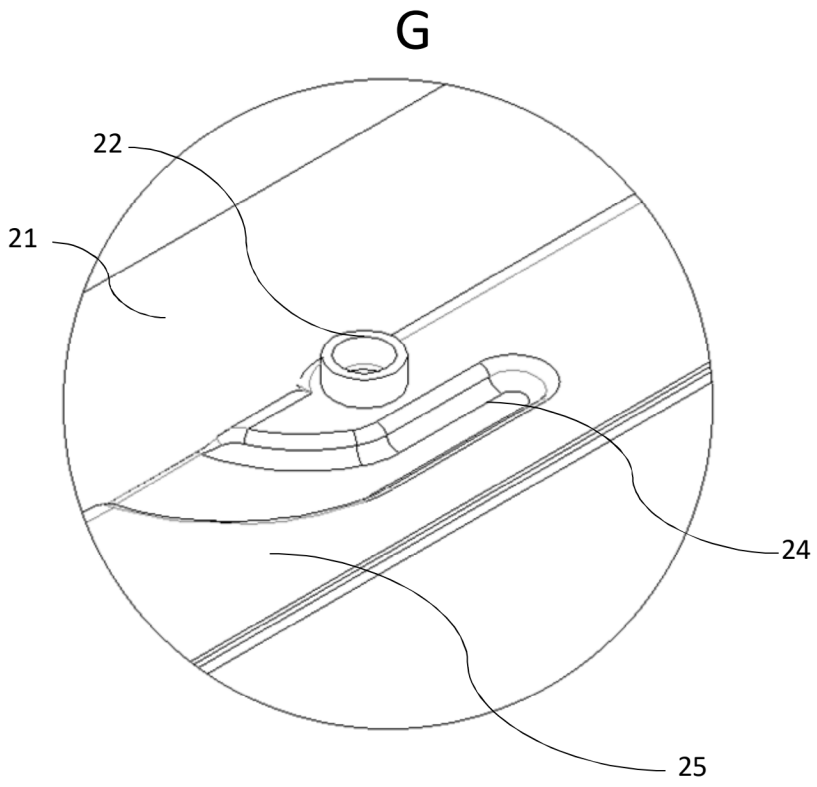


Fig.61

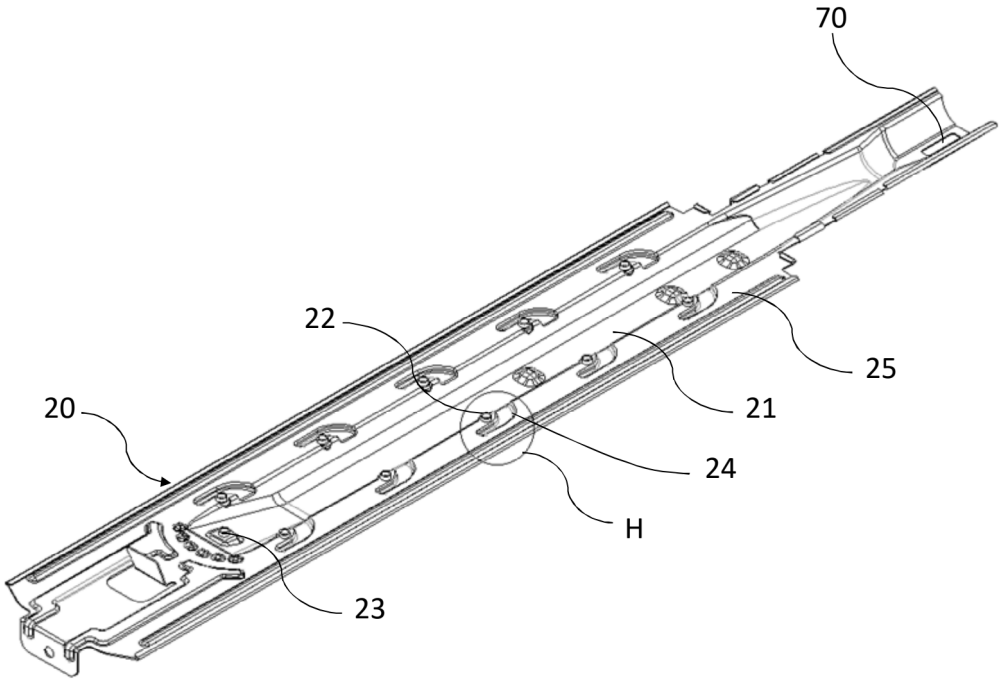


Fig.62

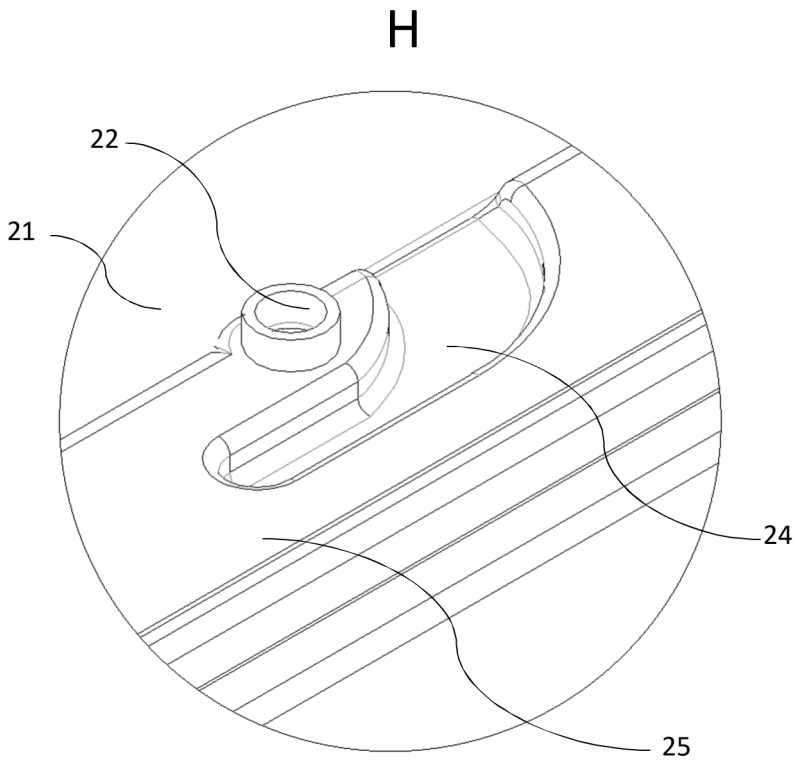


Fig.63

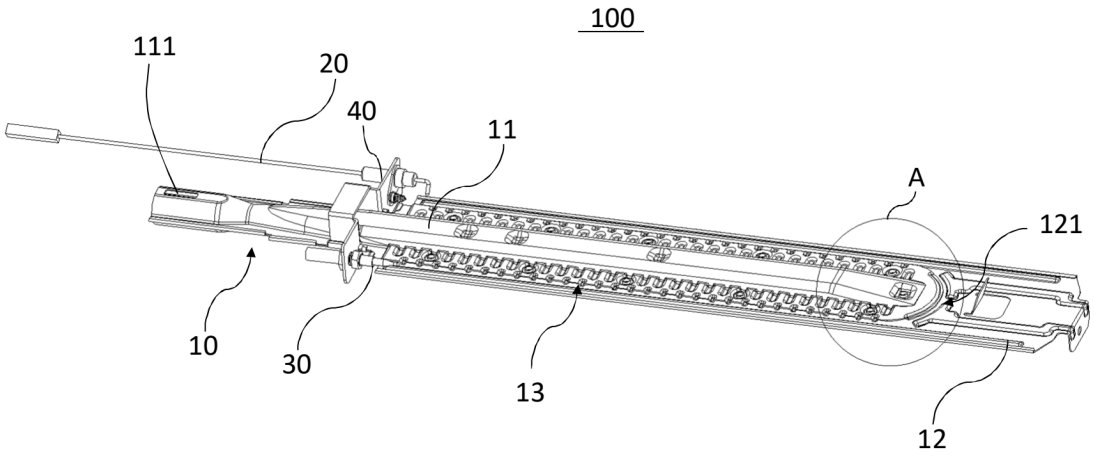
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Fig.64

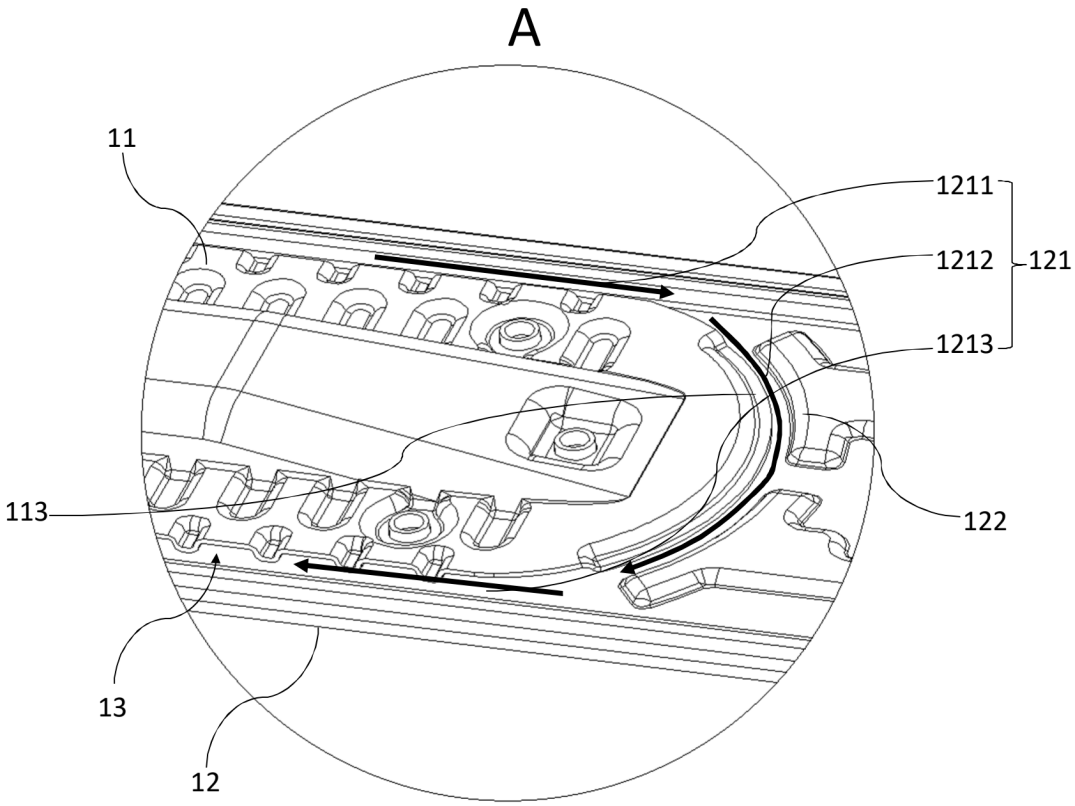
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Fig.65

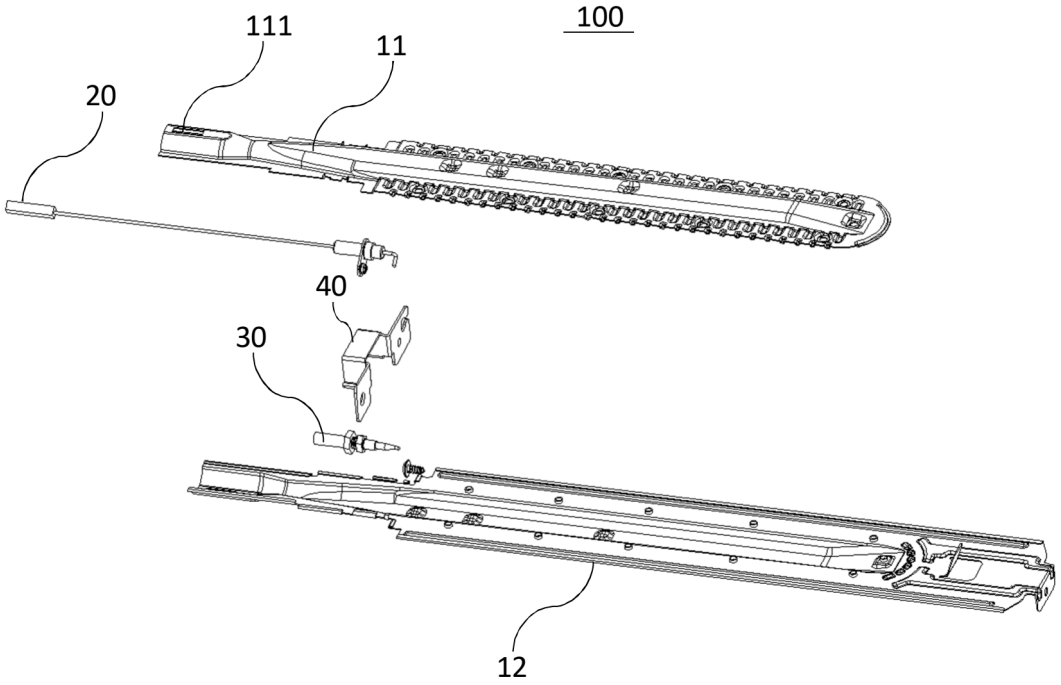
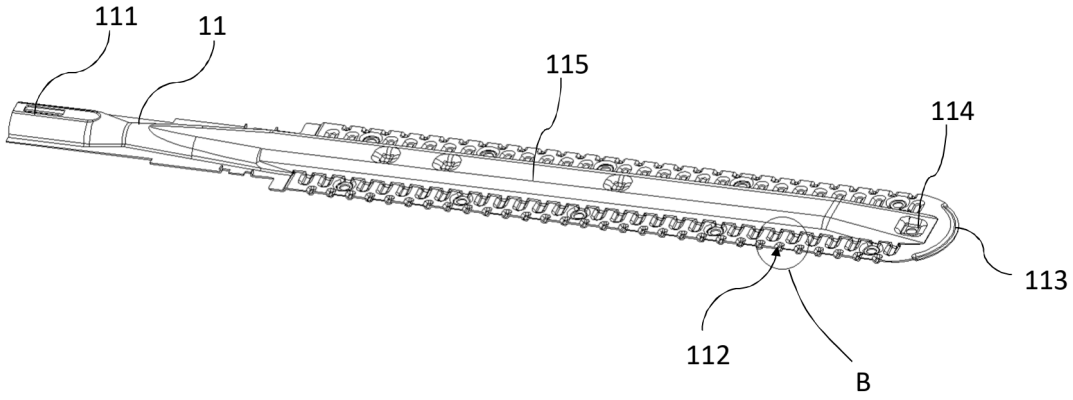



Fig.66

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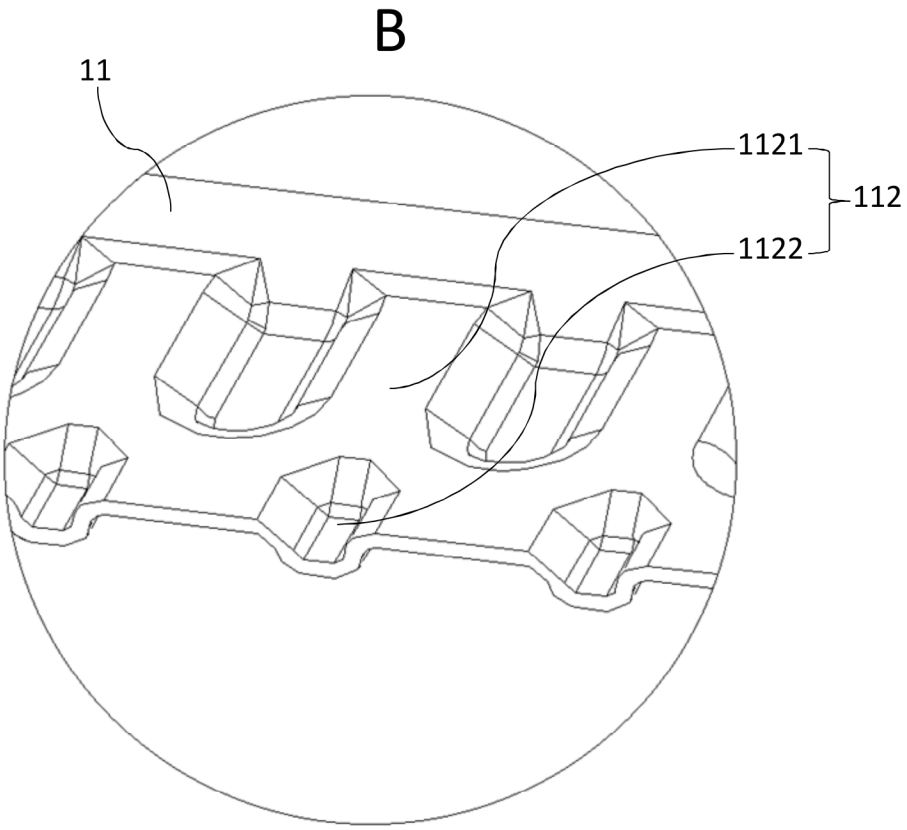


Fig.68

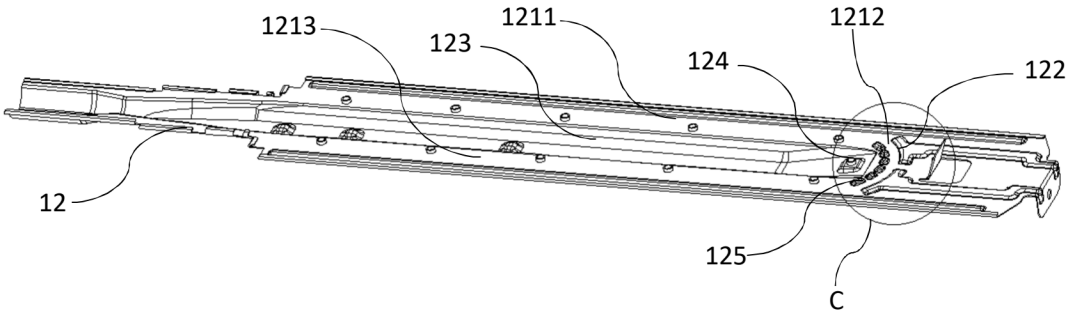


Fig.69

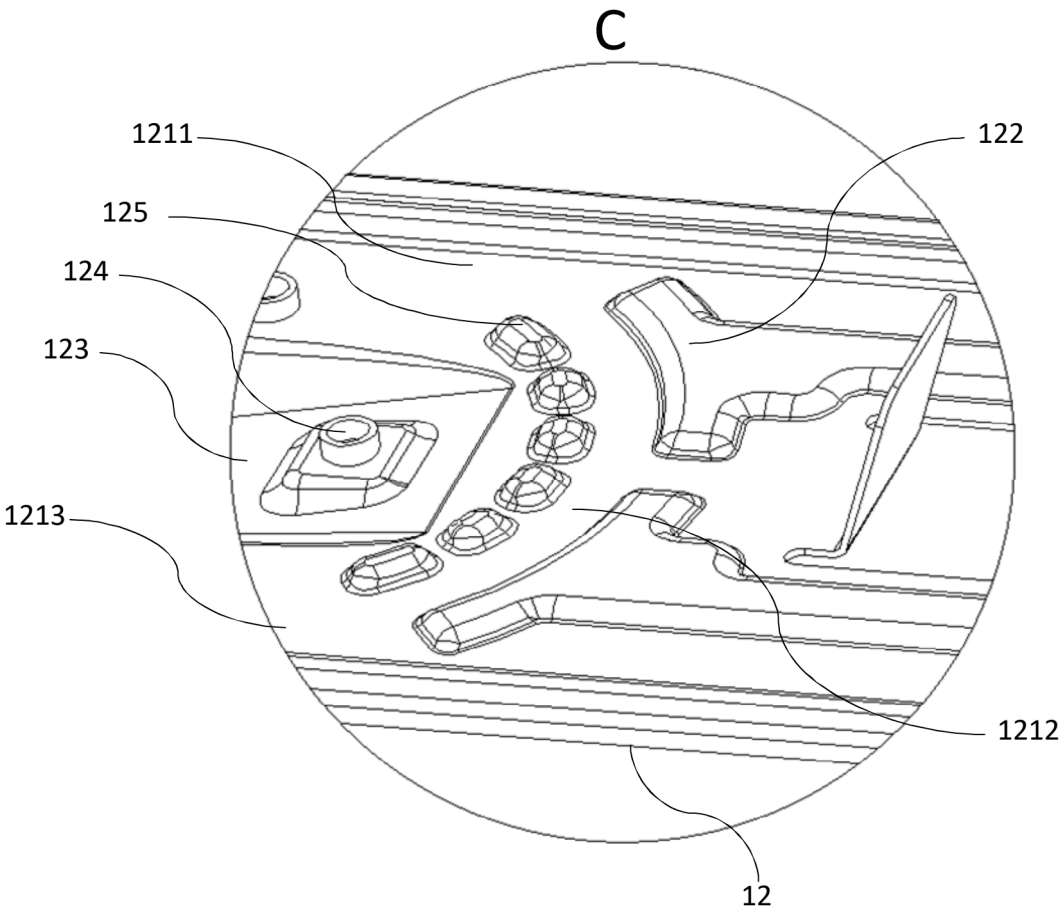


Fig.70

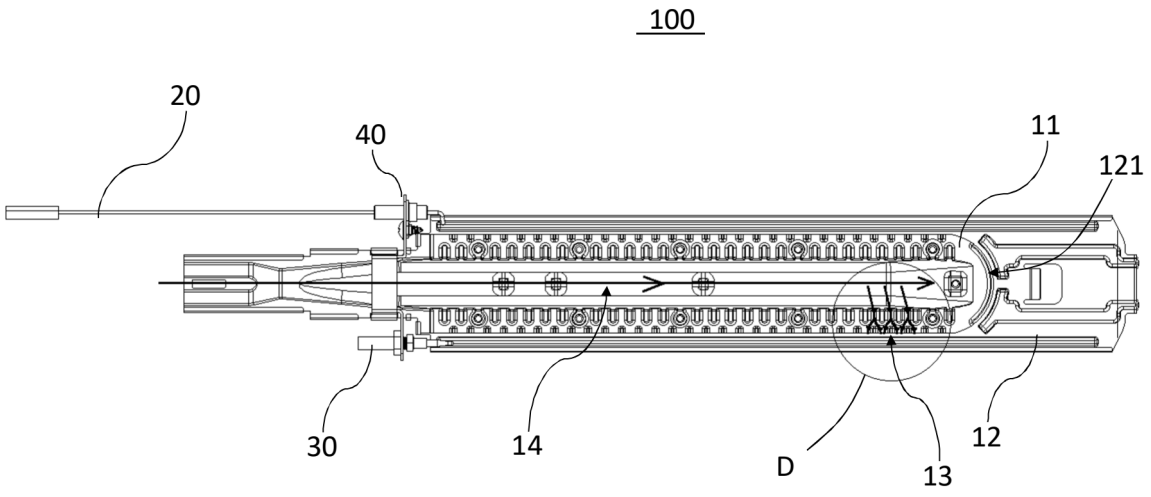


Fig.71

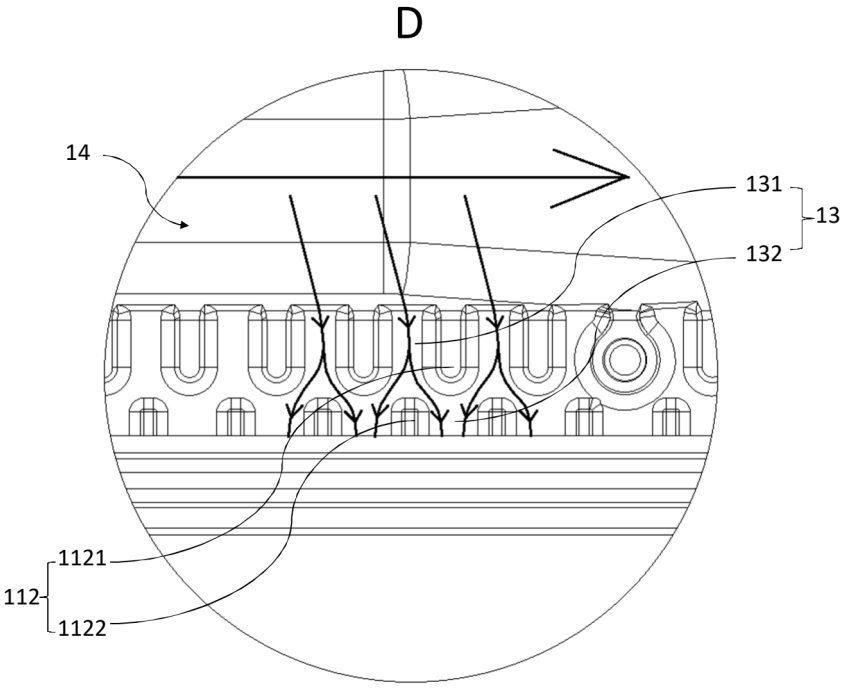


Fig.72

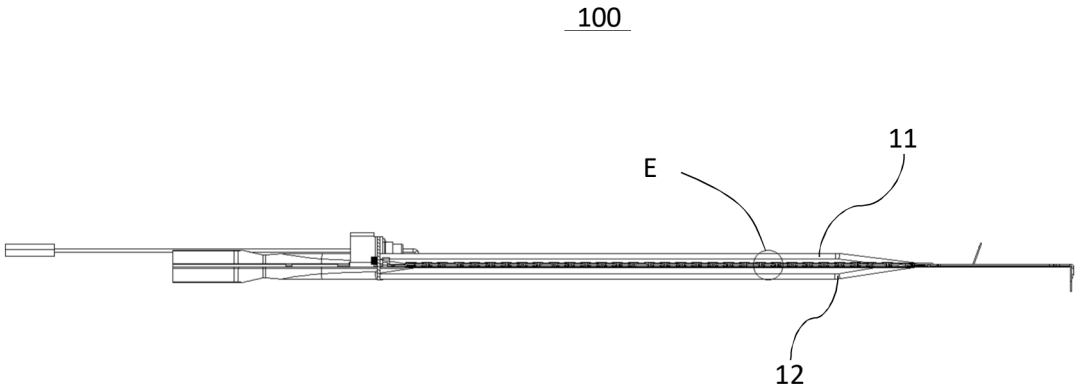


Fig.73

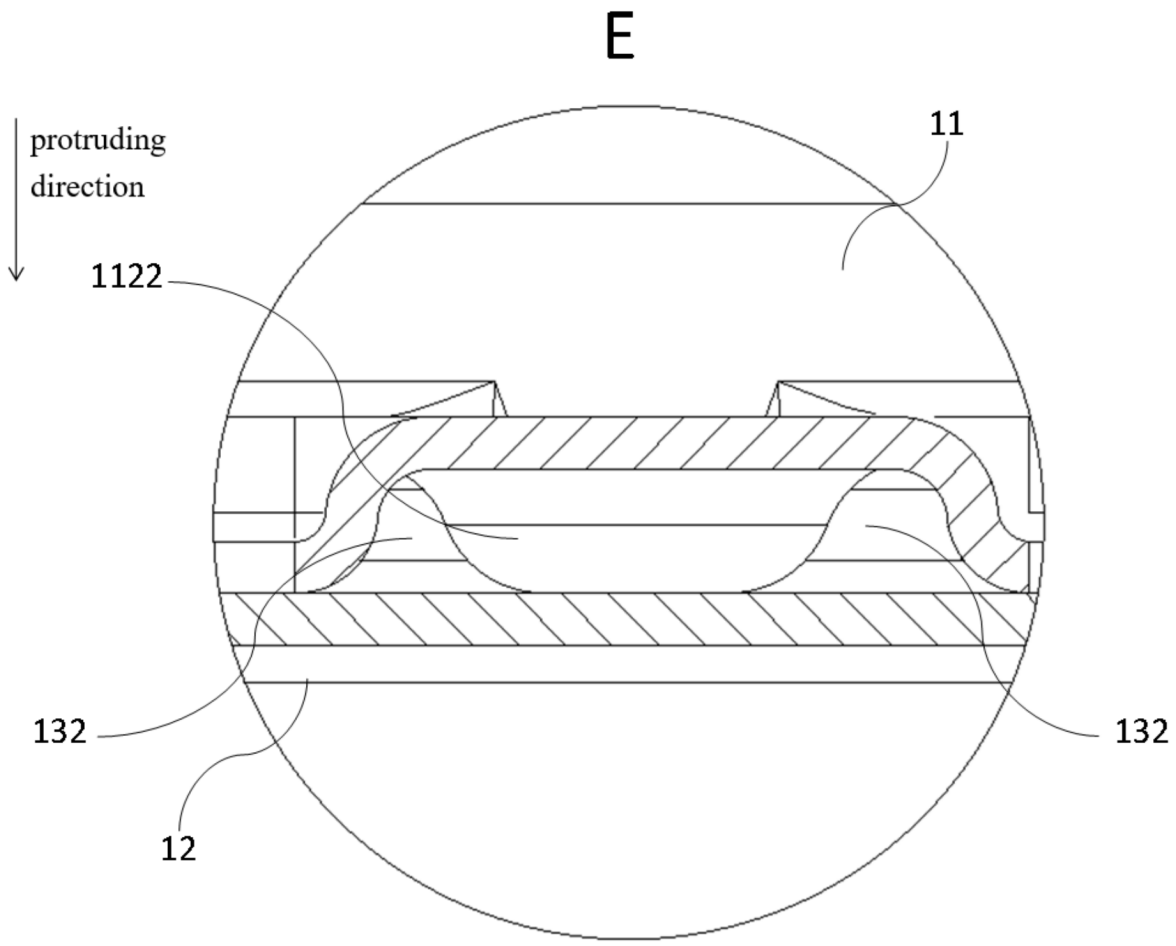


Fig.74

# INTERNATIONAL SEARCH REPORT

International application No.
**PCT/CN2024/082788**

**A. CLASSIFICATION OF SUBJECT MATTER**

F24C3/08(2006.01)i; F23D14/02(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)

IPC:F24C, F23D, A47J, F24H

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)

VEN, CNTXT, CNKI: 燃烧器, 炉头, 板, 燃气, 腔, 室, 铆接, 连接, 火孔, 连通, 通道, 传, 挡, 断, 堵, 火, combustor, sheet, metal, gas, fire, hole, plate, flow, guide, connect, shell, cavity, block, rivet, pass, spread

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| A | CN 201589265 U (LI HAIBO) 22 September 2010 (2010-09-22)<br>description, paragraphs [0017]-[0028], and figures 1-7 | 1-12 |
| A | CN 203323127 U (MERKUR HOLDINGS LIMITED) 04 December 2013 (2013-12-04)<br>entire document | 1-12 |
| A | CN 208398072 U (ZHONGSHAN VANWARD ELECTRIC APPLIANCE CO., LTD.) 18 January 2019 (2019-01-18)<br>entire document | 1-12 |
| A | CN 212691853 U (WU YU et al.) 12 March 2021 (2021-03-12)<br>entire document | 1-12 |
| A | CN 212698597 U (ZHEJIANG ANDE ELECTRICAL APPLIANCES CO., LTD.) 16 March 2021 (2021-03-16)<br>entire document | 1-12 |
| A | JP 2001021142 A (SANYO ELECTRIC CO. et al.) 26 January 2001 (2001-01-26)<br>entire document | 1-12 |

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"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
"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 such 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 |
|---|---|
| **28 May 2024** | **05 June 2024** |

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

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2024/082788

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| A | JP 2001041421 A (NARITA SEITOUSHIYO KK) 13 February 2001 (2001-02-13) entire document | 1-12 |

Form PCT/ISA/210 (second sheet) (July 2022)

**INTERNATIONAL SEARCH REPORT**
**Information on patent family members**

International application No.
**PCT/CN2024/082788**

| Patent document cited in search report | Publication date (day/month/year) | Patent family member(s) | Publication date (day/month/year) |
|---|---|---|---|
| CN 201589265 U | 22 September 2010 | None | |
| CN 203323127 U | 04 December 2013 | None | |
| CN 208398072 U | 18 January 2019 | None | |
| CN 212691853 U | 12 March 2021 | None | |
| CN 212698597 U | 16 March 2021 | None | |
| JP 2001021142 A | 26 January 2001 | None | |
| JP 2001041421 A | 13 February 2001 | None | |

Form PCT/ISA/210 (patent family annex) (July 2022)

## REFERENCES CITED IN THE DESCRIPTION

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### Patent documents cited in the description


- CN 202310279368 **[0001]**
- CN 202310277389 **[0001]**
- CN 202310276554 **[0001]**
- CN 202310277138 **[0001]**
- CN 202310276597 **[0001]**
- CN 202310276521 **[0001]**