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(54) **A BURNER ASSEMBLY WITH RADIAL OUTWARD FLAME**

BRENNERANORDNUNG MIT RADIALER NACH AUSSEN GERICHTETER FLAMME

ENSEMBLE BRÛLEUR À FLAMME RADIALE DIRIGÉE VERS L'EXTÉRIEUR

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**Description****FIELD OF THE INVENTION**

5 **[0001]** The present invention relates to a burner assembly used on gas cooker appliances and providing a gas and air mixture with the help of a venturi element.

**BACKGROUND OF THE INVENTION**

10 **[0002]** A cooker is equipped with a burner assembly that supplies a mixture of flammable gas and air to the mounting holes provided from a burner plate. The burner assembly has an inlet opening to which an injector is connected. Horizontal or vertical injector types are available depending on whether the injector is placed on the base of the lower body from the bottom or on the circumferential wall thereof from the side.

15 **[0003]** The burner assembly comprising a horizontal or partially angled injector is preferred due to its efficiency. In such burner assemblies, an external venturi element is present and the gas is accelerated by blowing the flammable gas supplied by the gas injector towards the venturi. The accelerated gas is taken into a container-shaped lower body and the air-gas mixture is transferred to a flame distributor and ignited herein by means of a lighter.

20 **[0004]** EP12714702 discloses a gas burner that generates a radial inward flame. A gas burner with inward-facing flame is disclosed, comprising a base body comprising a chamber connected to a radial venturi pipe fed by a gas injector; a mixing body with toroidal base that defines a toroidal mixing chamber communicating with the chamber of the base body; a circular upper cover with internal surface facing towards the axis of the upper cover, wherein a plurality of holes is obtained, in communication with the mixing chamber for inward-facing emission of flames.

25 **[0005]** WO2006005428A1 relates to a multiple sector gas burner with flames distributed over a substantially circular inner portion and over an outer portion, characterised by the following combination: - it presents a single gas inlet in communication with at least one injector disposed substantially horizontal, - with said at least one injector there is associated a venturi conduit of linear extension disposed substantially horizontal, - the primary air required for burner operation comes from the top external to the hob, - the secondary air required for burner operation comes from the top external to the hob.

30 **[0006]** WO2016141644A1 discloses a burner and a fuel gas implement. The burner comprises a bottom cup assembly and a flamer arranged on the bottom cup assembly; the cup bottom assembly comprises an air outlet and a first air intake channel equipped with a first nozzle; the burner comprises an inner ring primary air replenishment part; the inner-ring primary air replenishment part is arranged between the flamer and the bottom cup assembly; the inner ring primary air replenishment part is provided with an inner ring primary air replenishment channel; the flamer comprises an outer ring flamer and an inner ring flamer; the outer ring flamer encircles the inner ring flamer; the inner ring flamer is provided with an inner fuel-gas arrival cavity opposite to a second nozzle; the inner ring primary air replenishment channel is in communication with the inner fuel-gas arrival cavity.

35 **[0007]** CN109000234A discloses a combustor and a gas stove. The combustor comprises a bottom cup, a flamethrower and a nozzle holder. A mounting channel is formed in the bottom of the bottom cup. The nozzle holder comprises a first air inlet pipe and a second air inlet pipe, wherein a first air inlet channel is formed in the first air inlet pipe, and a second air inlet channel is formed in the second air inlet pipe; a first nozzle is mounted at an air outlet of the first air inlet channel, and a second nozzle is mounted at an air outlet of the second air inlet channel; and the second air inlet pipe is at least partially located in the mounting channel.

**BRIEF DESCRIPTION OF THE INVENTION**

45 **[0008]** The object of the invention is to provide a compact structure in a burner assembly having a venturi element, while at the same time increasing the combustion efficiency.

50 **[0009]** In order to achieve the aforementioned objectives, the invention relates to a burner assembly according to claim 1. feeding chamber allows the gas-air mixture from the distribution channel to rise directly between the outer wall and the inner wall to flow out of the slits. In the feeding chamber, which is narrowed thanks to the inner wall, an efficient combustion performance is achieved with minimal pressure loss by raising from the supply chamber the gas-air mixture coming from the distribution channel. The inner wall and the outer wall may have a shape that is parallel or that converges to each other from various portions.

55 **[0010]** In a preferred embodiment of the invention, the air inlet is provided directly on the circumferential wall by being aligned to the distribution channel perpendicularly or at an acute angle in such a way to supply combustible gas from the lower body to form an air-gas mixture therewith. Thus, a compact burner structure is provided. The air drawn to the lower body in radial direction from the circumferential wall is taken up axially and transferred radially outward through the slits in the flame distributor. This structure has been determined to provide high combustion performance as well as

low emission values compared to burner assemblies that do not have a distribution chamber between the inner and outer walls.

[0011] In a preferred embodiment of the present invention, the air inlet is aligned adjacent to the gas inlet on the circumferential wall in such a way to face the venturi element. Thus, it has been determined that the combustible gas supplied by the injector into the lower body in a pressurized manner facilitates drawing air from the adjacent air inlet during entry into the opposite venturi element.

[0012] In a preferred embodiment of the invention, the outer wall and the inner wall extend coaxially. Thus, a corridor is obtained in the distribution chamber with each part at an equal distance. This equidistant corridor prevents the formation of turbulence during the advance of the air-gas mixture and reduces pressure loss.

[0013] The burner assembly according to the invention comprises a flat cover that fits on the outer wall along an outer portion, in such a way to cover the feeding chamber. The flat cover ensures that the feeding chamber is covered in such a way that it only provides air exit through the slits. It prevents foreign material entry to the feeding chamber from the top. Moreover, it is easily cleanable since it is removable.

[0014] According to the invention, the flat cover comprises a central portion that follows the outer portion of the cover and fits into the inner wall. It blocks the central portion and the outer portion together in such a way to prevent the visibility of the lower body from above.

[0015] In a preferred embodiment of the invention, the feeding chamber is in the form of a toroid. In this form, the middle portion in the flame distributor is cold compared to the sides, so that the heat distribution is improved, preventing damage to the coatings in the flame distributor, for example, due to the high temperature.

[0016] In a preferred embodiment of the invention, the central chamber is at least partially aligned on the venturi element. It allows obtaining a compact burner element in which a flame distributor with a central chamber located on the venturi element fits into the lower body.

[0017] In a preferred embodiment of the invention, the inner wall comprises a sensor element rising from the central chamber. The flame sensor is delimited in the central chamber; thereby measurement consistency is increased as it is placed in a cooled area relative to the circumferential ends. In a preferred embodiment, the sensor element is a heat sensing probe. The presence of a lower heat effect in the central chamber compared to the distribution channel allows for a high-consistency measurement, for example, for a pot placed thereon.

[0018] In a preferred embodiment of the invention, the sensor element is in a rod-like form rising from the central chamber. In this way, heat detection by conduction becomes possible, for example, by stretching it to touch the bottom of the pot from the top.

[0019] In a preferred embodiment of the invention, the sensor element comprises a handle portion placed on the lower body. Since the handle portion is fixed to the lower body, it is possible for the sensor element to be fixed in the burner and to be disassembled when necessary.

[0020] In a preferred embodiment of the invention, the sensor element is fixed in the middle of the central chamber. Thanks to the inner wall, the amount of heat in the central portion is reduced compared to the circumferential ends. Since the heat effect occurs at the middle of the center, it is possible for the sensor to be affected minimally by the temperature of the burner in case of burning with the burner.

[0021] In a preferred embodiment of the invention, the inner wall extends shorter than the outer wall. In this way, it is closed with a curvilinear cover from the upper portions thereof, and the central portion where the inner wall is located creates a height difference with the circumferential portion.

[0022] In a preferred embodiment of the invention, the lower body is made of metal injection. Metal injection allows for the integrated formation of the venturi element, air and gas inlet in one operation.

[0023] In a preferred embodiment of the invention, the outer wall and the inner wall are in circular form and the ratio of their diameters to each other is between 0.4 and 0.9, respectively. It has surprisingly been observed that this ratio produces the lowest emission values in case of burning with the burner.

**BRIEF DESCRIPTION OF THE FIGURES**

[0024]

Figure 1 is a perspective view of a representative embodiment with a one-piece flat top cover of the burner assembly of the invention with a radial outward flame having a single burning ring.

Figure 2 is a perspective view of the burner assembly given in Figure 1 with the top cover removed.

Figure 3 is a cross-sectional view of a representative embodiment of the burner assembly of the invention having a one-piece top cover.

Figure 4 is a perspective view of a burner assembly comprising a cover having a hole in the middle of which a rod-like sensor is placed.

Figure 5 is a cross-sectional view of the representative embodiment of the invention shown in Figure 4.

Figure 6 is a cross-sectional perspective illustration of a burner assembly with a radial outward flame having a single ring comprising a rod sensor in the center of the cover.

Figure 7 is a view of the inlet portion of an ambient air cooling channel formed between a lower part and a flame distributor of a representative embodiment of the burner assembly of the invention.

Figure 8 is a general view of the air passage line from the ambient air cooling channel with the flame distributor removed in the embodiment shown in Figure 7.

## DETAILED DESCRIPTION OF THE INVENTION

**[0025]** In this detailed description, the development of the invention is described without any limitation and only with references to the examples for a better explanation of the subject.

**[0026]** In Figure 1, a lower body (10) mounted under the burner plate to mount to a hole (not shown) located in the burner plate of a gas cooker and a gas burner with a radially outward single burning ring comprising an upper part (20) placed thereon is shown as a perspective

**[0027]** The lower body (10) has a radial circumferential wall (11) in its front portion, and the circumferential wall (11) delimits the front portion of a mixing chamber (14). A gas inlet (50) is provided in the middle of the circumferential wall (11) in such a way to allow an injector (60) to be placed at a horizontal or acute angle. An air inlet (12) is formed in the form of an opening on the circumferential wall (11) in a distanced and adjacent manner on both sides of the gas inlet (50). The air inlet (12) is in the form of a vent, and a flow regulation element (122) having grid-like shaped holes is located thereon. A venturi element (13) shown in Figure 3 is provided in the lower body (10) adjacent to the mixing chamber (14) coaxially with the gas inlet (50). A venturi inlet (15) of the venturi element (13) and an outlet (17) in the opposite direction thereof extend from end to end in the lower body (10) in such a way to pass through the center. The lower body (10) has a container-like structure and an upper part (20) fits in a gas-tight manner to a mouth portion (16) remaining on its upper portion. A cut is created in the lower body (10) near the gas inlet (50) of the upper part (20), forming an upper opening (18) that can reach the mixing chamber (14).

**[0028]** The upper part (20) is a planar plate formed with a distribution channel (26) in a duct structure that extends upward close to its radial end. The mixing chamber (14) located in the lower body (10) and the venturi element (13) are closed from above with a covering portion (22) of the upper part (20). In the lower body (10), the combustible gas supplied from the gas inlet (50) and the ambient air drawn from the air inlets (12) come together in the mixture chamber (14) and is mixed at the outlet (17) after being accelerated by the venturi element (13), and the air-gas mixture is delivered to the flame distributor (30) by passing through the distribution channel (26) because of the portion that the covering portion (22) covers. In order to impermeably join the upper part (20) with the lower body (10), an upper flange (20) on the back portion of the upper part (20) overlapping with a lower flange (19) located on a back portion of the lower body (10) creates an overlapping connection area, wherein the upper and lower flanges (24, 19) are combined together, for example, with rivets.

**[0029]** In Figure 2, the cover (40) located on the flame distributor (30), which is removably located on the lower body (10) and has a connection that continues the distribution channel (26), is shown in perspective in a removed state. The flame distributor (30) is in the circular container-like form. A circumferential outer wall (34) of the flame distributor (30) comprises a plurality of ordered slots (32) formed transversely along its upper end. A circular inner wall (35), coaxial with the outer wall (34), delimits a central chamber (36) therein, in a distanced manner with the outer wall (34). A feeding chamber (33) is formed between the outer wall (34) and the inner wall (35). The distribution channel (26) extends radially within the feeding chamber (33). The diameter of the flame distributor (30) is smaller than the diameter of the mouth portion (16). The central chamber (36) is circular and the lower body (10) can be accessed therethrough. The venturi element (15) is accessible by the central chamber (36). A flat one-piece cover (40), seen in Figure 1 and Figure 3, sits circumferentially on the outer wall (34) from an outer portion (42), so as to close the slits (32) from the top. The central part (44) of the cover (40), on the other hand, fits circumferentially on the inner wall (35) by tilting the outer portion (42) conically inwards and completely closes the central chamber (36) from the top. At the lower portion of the central portion (44) of the cover (40), a housing (48) is formed where the inner wall (35) will be placed completely, thus making gas passage from the feeding chamber (33) to the central chamber (36) difficult. With the cover (40) sitting on the flame distributor (30), the feeding chamber (33) is closed from the top in such a way to create a toroidal form. Thus, the combustible gas supplied from the injector (60) sitting on the gas inlet (50) with a downward slope at a small angle on

the horizontal axis passes from the mixing chamber (14) to the opposite venturi element (15). Meanwhile, due to the negative pressure created, air is drawn from under the cooker plate (not shown) from the air inlets (12) provided on both sides adjacent to the gas inlet (50). The air coming from the air inlet (12) and the combustible gas come together in the mixture chamber (14) and mix by passing through the venturi element (13). The flow regulation element (122) in the grid structure acts as a barrier against sudden pressure changes towards the air inlet (12) and dampens the sudden air pressures. The air exiting from the outlet (17) hits the part corresponding to the circumferential wall (11) of the lower body (10), and the air-gas mixture is taken up from the distribution channel (26) and carried to the flame distributor (30). In the flame distributor (30), the feeding channel (33) is located at the outer portion of the inner wall (35). The inner wall (35), which sits on the housing (48) from the top, transfers the air-gas mixture out of the slits (32) over the inner portion of the outer wall (34). Thus, a radial outward flame formation is formed by burning the air-gas mixture with a combustor (not shown).

**[0030]** In Figure 4, a representative embodiment of the burner assembly of the invention is shown in perspective, in which a sensor element (70) in the form of a rod and in the structure of a probe is placed. In this embodiment, a circular hole (46) is made in the middle of the central portion (44) of the cover (40). The sensor element (70) extends from a flattened top portion (72) to the lower body (10) over the central chamber (36), passing through the hole (46). As shown in Figure 5 and Figure 6, the sensor element (70) is placed in a slot on the upper part (20) from a handle portion (74). When a pot (not shown) is placed on the cooker, the top portion (72) contacts the bottom of the pot from the center of the circle. During the combustion created by the burner, the central chamber (36) and the central portion (44) remaining above heats less than the outer portion (42). One of the factors that provides this is that the ambient air can pass through a cooling channel (80) formed between the upper part (20) and the flame distributor (30) which is removably placed on it by aligning the distribution channel (26) along a flow direction (A). The cooling channel (80) is defined between a planar upper wall (28) of the upper part (20) and the planar lower wall (37) of the flame distributor (30) facing it. In addition, it helps cooling that the central chamber (36) remains empty and the gas is prevented from exit from the central chamber (36) by the cover (40), and the air-gas mixture is only passed through the supply chamber (33) and the combustion is made with the air-gas mixture supplied from the supply chamber (33). By creating a barrier with the inner wall (35), the central chamber (36), in which the temperature decreases, heats less and provides less heat transfer to the sensor element (70) passing through it, thus ensuring a near-realistic pot bottom temperature measurement. At the same time, the cooling provided by the central chamber (36) in the central portion (44) prevents the cover (40) from being exposed to high temperatures and, for example, the coating of the cover (40) with a coating is prevented from exfoliating.

**[0031]** The cooling channel (80) is shown in detail in Figure 7 and Figure 8. The cooling channel (80) is located between the equidistant distribution channels (26) that extend upwards by forming a chimney-like neck. During the drawing of air from the front portion of the lower body through the air inlet (12) over the circumferential wall (11), the ambient air drawn as shown in Figure 8 creates an air flow (A) from front to back. As the air flow (A) passes through the cooling channel (80), it creates a cooling effect on the central portion of the flame distributor (30). Thus, the heat distribution of the flame distributor (30) heated by the flame exiting from the radial outward slits (32) creates a decreasing gradient towards the radial center. The sensor element (70), which is erected in the radial center of the flame distributor (30), is affected minimally by the heating of the combustor during cooking in the central portion, which is cooled by the ambient air, and provides temperature measurement with low error.

**REFERENCE NUMBERS**

**[0032]**

10	Lower body	33	Feeding chamber
11	Circumferential wall	34	Outer wall
12	Air inlet	35	Inner wall
122	Flow regulation element	36	Central chamber
13	Venturi element	37	Lower wall
14	Mixing chamber	40	Cover
15	Venturi inlet	42	Outer portion
16	Mouth portion	44	Central portion
17	Exit	46	Hole
18	Top opening	48	Housing
19	Lower flange	50	Gas inlet
20	Upper part	60	Injector
22	Covering portion	70	Sensor element

(continued)

5	24	Upper flange	72	Top portion
	26	Distribution channel	74	Handle portion
	28	Upper wall	80	Cooling channel
	30	Flame distributor	A	Air flow
	32	Slit		

10 **Claims**

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1. A burner assembly for cooker appliances comprising a circumferential wall (11) having a gas inlet (50) in which an injector (60) supplying combustible gas is mounted in a horizontal or acute angle position, and a lower body (10) in which a venturi element (13) adjacent to a mixture chamber (14) accessed by the gas inlet (50) and an air inlet (18) and where the circumferential wall (11) is at least partially delimited; a flame distributor (30) where an air-gas mixture supplied from the lower body (10) by being fed from the mixture chamber (14) is transferred through a corresponding distribution channel (26) and where the air-gas mixture exits radially outward through a plurality of slits (32) in an outer wall (34) thereof, wherein an internal wall (35) surrounds the distribution channel (26) in a way that defines a feeding chamber (33) by taking it therebetween, in a distanced manner with the outer wall (34), and wherein the internal wall (35) extends in such a way to delimit a central chamber (36), wherein a flat cover (40) fits on the outer wall (34) along an outer portion (42) of the flat cover (40), in such a way to cover the feeding chamber (33), **characterized in that** central portion (44) of the flat cover (40) follows the outer portion (42) of the cover (40) and fits the inner wall (35) so that the central portion (44) completely closes the central chamber (36) from the top.
  2. A burner assembly according to Claim 1, wherein the air inlet (18) is provided in such a way to be supplied from the lower body (10) in order to form a mixture of combustible gas and air gas, aligning perpendicularly or wide-angularly to the distribution channel (26) directly on the circumferential wall (12).
  3. A burner assembly according to Claim 2, wherein the air inlet (18) is aligned on the circumferential wall (11) adjacent to the gas inlet (50) in such a way to face the venturi element (13).
  4. A burner assembly according to any of the preceding claims, wherein the outer wall (34) and the inner wall (35) extend coaxially.
  5. A burner assembly according to any of the preceding claims, wherein the feeding chamber (33) comprises a toroid-like form.
  6. A burner assembly according to any one of the preceding claims, wherein the central chamber (36) is at least partially aligned on the venturi element (13).
  7. A burner assembly according to any one of the preceding claims, wherein the inner wall (35) includes a sensor element (70) rising from the central chamber (36).
  8. A burner assembly according to claim 7, wherein the sensor element (70) is in a rod-like shape rising from the central chamber (36).
  9. A burner assembly according to Claim 8, wherein the sensor element (70) comprises a handle portion (74) placed on the lower body (10).
  10. A burner assembly according to Claims 7-9, wherein the sensor element (70) is fixed in the middle of the central chamber (36).
  11. A burner assembly according to any one of the preceding claims, wherein the inner wall (35) extends shorter than the outer wall (34).
  12. A burner assembly according to any of the preceding claims, wherein the lower body (10) is made of metal injection.
  13. A burner assembly according to any one of the preceding claims, wherein the outer wall (34) and the inner wall (35)

are in circular shape and the ratio of their diameters to each other is between 0.4 and 0.9, respectively.

## Patentansprüche

- 5
1. Eine Brenneranordnung für Kochgeräte, umfassend eine Umfangswand (11) mit einem Gaseinlass (50), in dem ein Injektor (60) eingebaut ist, der brennbares Gas in einer horizontalen oder spitzen Winkelposition zuführt, und einen unteren Körper (10), in dem ein Venturielement (13) neben einer Mischkammer (14) vorgesehen ist, die über den Gaseinlass (50) und einen Lufteinlass (18) zugänglich ist, und wobei die Umfangswand (11) zumindest teilweise abgegrenzt ist; ein Flammenverteiler (30), bei dem das von der Mischkammer (14) im unteren Körper (10) zugeführte Luft-GasGemisch durch einen entsprechenden Verteilungskanal (26) transportiert und durch mehrere Schlitze (32) in einer Außenwand (34) radial nach außen austritt, wobei eine Innenwand (35) den Verteilungskanal (26) so umgibt, dass eine Versorgungskammer (33) zwischen ihr und der Außenwand (34) in einem distanziierten Verhältnis ausgebildet ist, und wobei die Innenwand (35) sich so erstreckt, dass sie eine zentrale Kammer (36) abgrenzt, wobei eine flache Abdeckung (40) auf der Außenwand (34) entlang eines äußeren Abschnitts (42) der flachen Abdeckung (40) sitzt, um die Versorgungskammer (33) abzudecken, **dadurch gekennzeichnet, dass** ein zentraler Abschnitt (44) der flachen Abdeckung (40) dem äußeren Abschnitt (42) der Abdeckung (40) folgt und auf die Innenwand (35) passt, sodass der zentrale Abschnitt (44) die zentrale Kammer (36) vollständig von oben verschließt.
  - 20 2. Eine Brenneranordnung nach Anspruch 1, wobei der Lufteinlass (18) so vorgesehen ist, dass er vom unteren Körper (10) zugeführt wird, um ein Gemisch aus brennbarem Gas und Luft zu bilden, und sich senkrecht oder in einem weiten Winkel zum Verteilungskanal (26) direkt an der Umfangswand (12) ausrichtet.
  - 25 3. Eine Brenneranordnung nach Anspruch 2, wobei der Lufteinlass (18) an der Umfangswand (11) neben dem Gaseinlass (50) so ausgerichtet ist, dass er dem Venturielement (13) zugewandt ist.
  4. Eine Brenneranordnung nach einem der vorhergehenden Ansprüche, wobei die Außenwand (34) und die Innenwand (35) koaxial verlaufen.
  - 30 5. Eine Brenneranordnung nach einem der vorhergehenden Ansprüche, wobei die Versorgungskammer (33) eine torusartige Form umfasst.
  6. Eine Brenneranordnung nach einem der vorhergehenden Ansprüche, wobei die zentrale Kammer (36) zumindest teilweise auf dem Venturielement (13) ausgerichtet ist.
  - 35 7. Eine Brenneranordnung nach einem der vorhergehenden Ansprüche, wobei die Innenwand (35) ein Sensorelement (70) umfasst, das von der zentralen Kammer (36) aufsteigt.
  8. Eine Brenneranordnung nach Anspruch 7, wobei das Sensorelement (70) stabförmig ist und von der zentralen Kammer (36) aufsteigt.
  - 40 9. Eine Brenneranordnung nach Anspruch 8, wobei das Sensorelement (70) einen Griffabschnitt (74) umfasst, der am unteren Körper (10) angebracht ist.
  - 45 10. Eine Brenneranordnung nach den Ansprüchen 7-9, wobei das Sensorelement (70) in der Mitte der zentralen Kammer (36) fixiert ist.
  11. Eine Brenneranordnung nach einem der vorhergehenden Ansprüche, wobei die Innenwand (35) kürzer ist als die Außenwand (34).
  - 50 12. Eine Brenneranordnung nach einem der vorhergehenden Ansprüche, wobei der untere Körper (10) aus Metallguss besteht.
  - 55 13. Eine Brenneranordnung nach einem der vorhergehenden Ansprüche, wobei die Außenwand (34) und die Innenwand (35) kreisförmig sind und das Verhältnis ihrer Durchmesser zueinander zwischen 0,4 und 0,9 beträgt.

## Revendications

- 5 1. Un ensemble brûleur pour appareils de cuisson comprenant une paroi circonférentielle (11) ayant une entrée de gaz (50) dans laquelle un injecteur (60) fournissant du gaz combustible est monté en position horizontale ou à angle aigu, et un corps inférieur (10) dans lequel un élément venturi (13) adjacent à une chambre de mélange (14) accessible par l'entrée de gaz (50) et une entrée d'air (18) et où la paroi circonférentielle (11) est au moins partiellement délimitée ; un distributeur de flammes (30) où un mélange air-gaz fourni par le corps inférieur (10) en étant alimenté depuis la chambre de mélange (14) est transféré à travers un canal de distribution correspondant (26) et où le mélange air-gaz sort radialement vers l'extérieur à travers une pluralité de fentes (32) dans une paroi extérieure (34) de celui-ci, **caractérisé en ce qu'**une paroi interne (35) entoure le canal de distribution (26) de manière à définir une chambre d'alimentation (33) en l'intercalant avec la paroi extérieure (34), et **en ce que** la paroi interne (35) s'étend de manière à délimiter une chambre centrale (36), une couverture plate (40) se pose sur la paroi extérieure (34) le long d'une partie extérieure (42) de la couverture plate (40), de manière à couvrir la chambre d'alimentation (33), **caractérisée en ce qu'**une partie centrale (44) de la couverture plate (40) suit la partie extérieure (42) de la couverture (40) et s'adapte à la paroi interne (35) de manière à ce que la partie centrale (44) ferme complètement la chambre centrale (36) par le haut.
- 20 2. Un ensemble brûleur selon la revendication 1, dans lequel l'entrée d'air (18) est prévue de manière à être alimentée par le corps inférieur (10) afin de former un mélange de gaz combustible et d'air gazeux, s'alignant perpendiculairement ou à large angle sur le canal de distribution (26) directement sur la paroi circonférentielle (12).
- 25 3. Un ensemble brûleur selon la revendication 2, dans lequel l'entrée d'air (18) est alignée sur la paroi circonférentielle (11) adjacente à l'entrée de gaz (50) de manière à faire face à l'élément venturi (13).
- 30 4. Un ensemble brûleur selon l'une quelconque des revendications précédentes, dans lequel la paroi extérieure (34) et la paroi interne (35) s'étendent de manière coaxiale.
5. Un ensemble brûleur selon l'une quelconque des revendications précédentes, dans lequel la chambre d'alimentation (33) comprend une forme toroïdale.
- 35 6. Un ensemble brûleur selon l'une quelconque des revendications précédentes, dans lequel la chambre centrale (36) est au moins partiellement alignée sur l'élément venturi (13).
7. Un ensemble brûleur selon l'une quelconque des revendications précédentes, dans lequel la paroi interne (35) comprend un élément capteur (70) s'élevant de la chambre centrale (36).
- 40 8. Un ensemble brûleur selon la revendication 7, dans lequel l'élément capteur (70) est de forme tige s'élevant de la chambre centrale (36).
9. Un ensemble brûleur selon la revendication 8, dans lequel l'élément capteur (70) comprend une partie poignée (74) placée sur le corps inférieur (10).
- 45 10. Un ensemble brûleur selon les revendications 7 à 9, dans lequel l'élément capteur (70) est fixé au centre de la chambre centrale (36).
- 50 11. Un ensemble brûleur selon l'une quelconque des revendications précédentes, dans lequel la paroi interne (35) s'étend plus courte que la paroi extérieure (34).
12. Un ensemble brûleur selon l'une quelconque des revendications précédentes, dans lequel le corps inférieur (10) est fabriqué par injection métallique.
- 55 13. Un ensemble brûleur selon l'une quelconque des revendications précédentes, dans lequel la paroi extérieure (34) et la paroi interne (35) sont de forme circulaire et le rapport de leurs diamètres respectifs est compris entre 0,4 et 0,9.

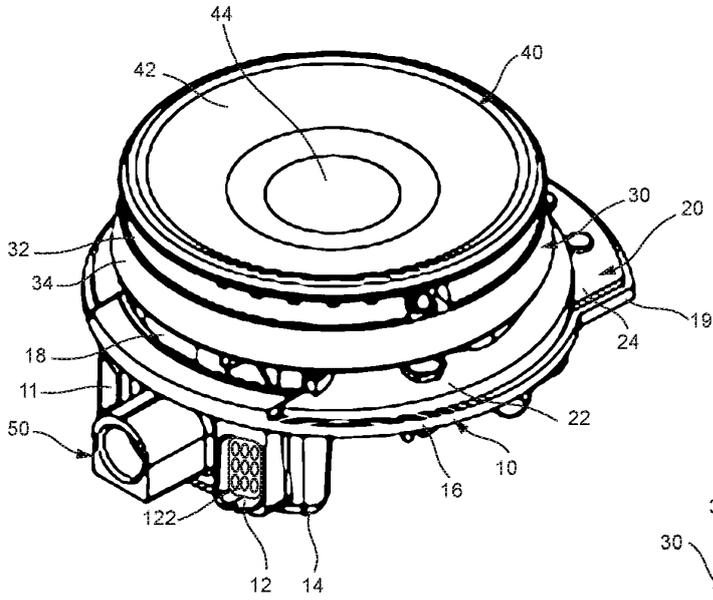


Figure 1

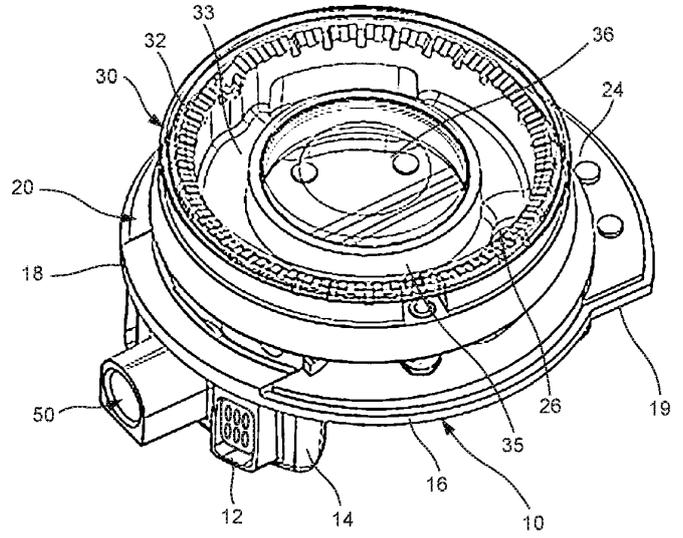


Figure 2

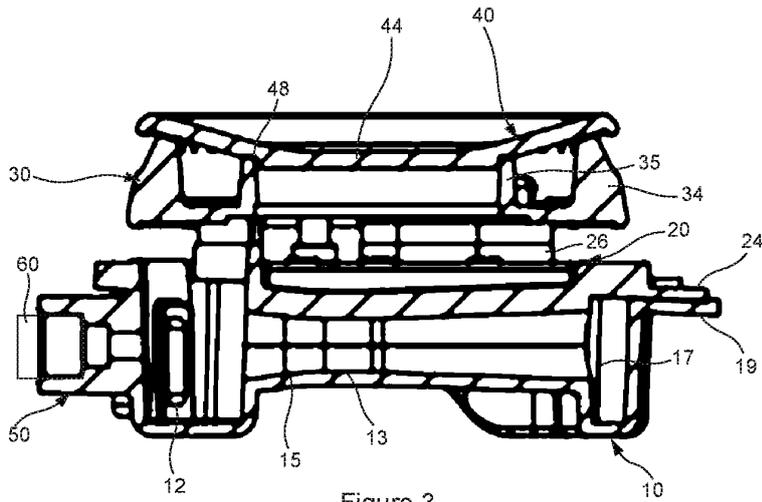


Figure 3

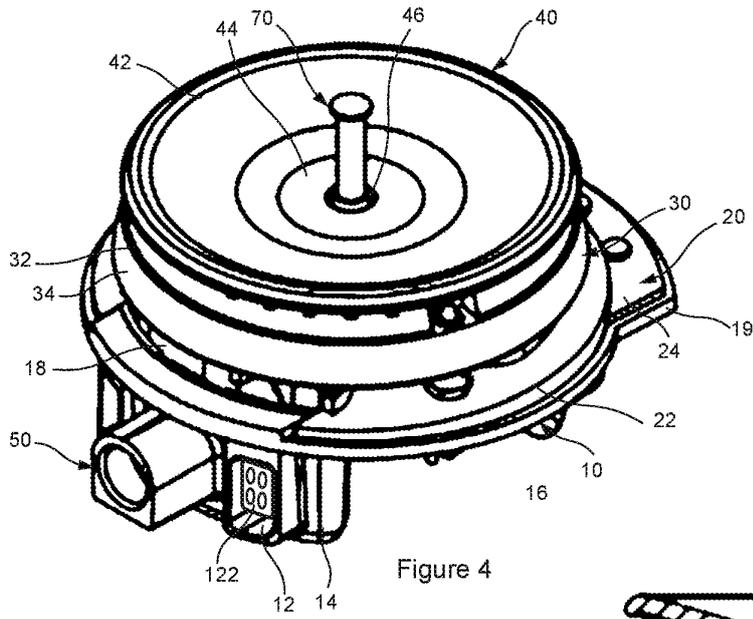


Figure 4

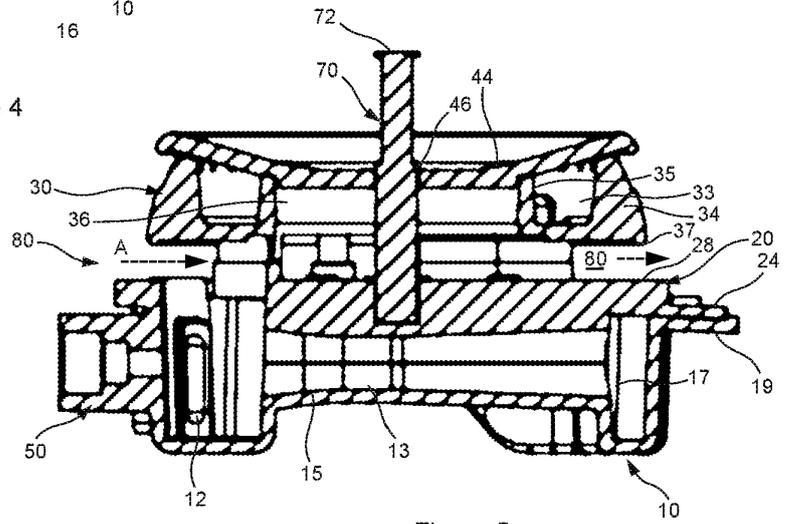


Figure 5

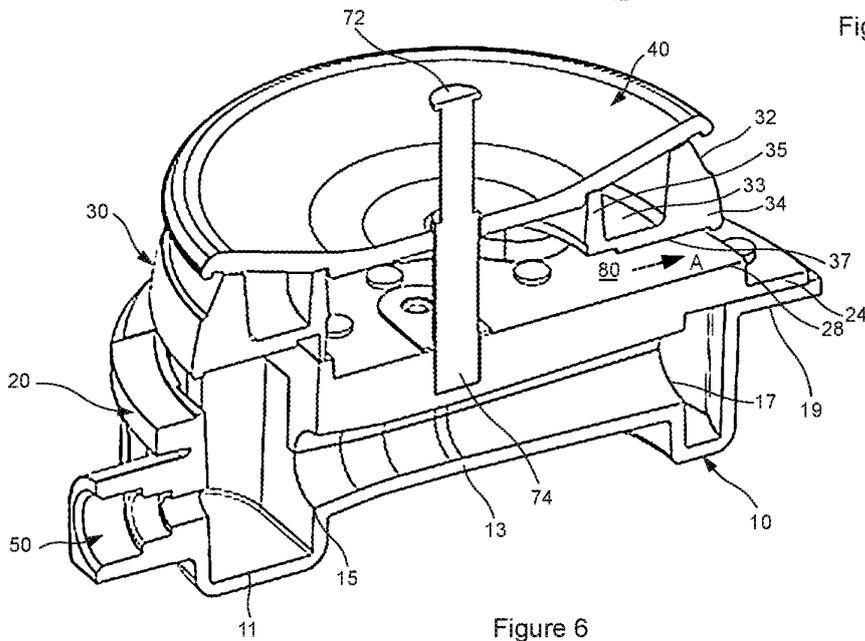
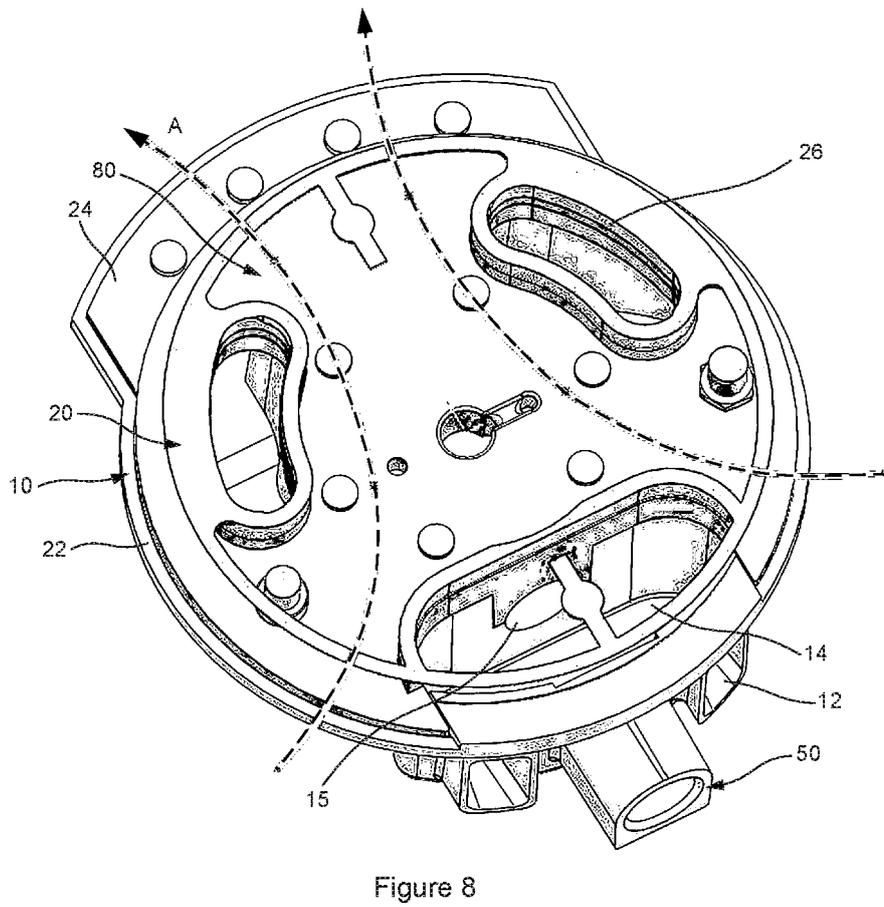
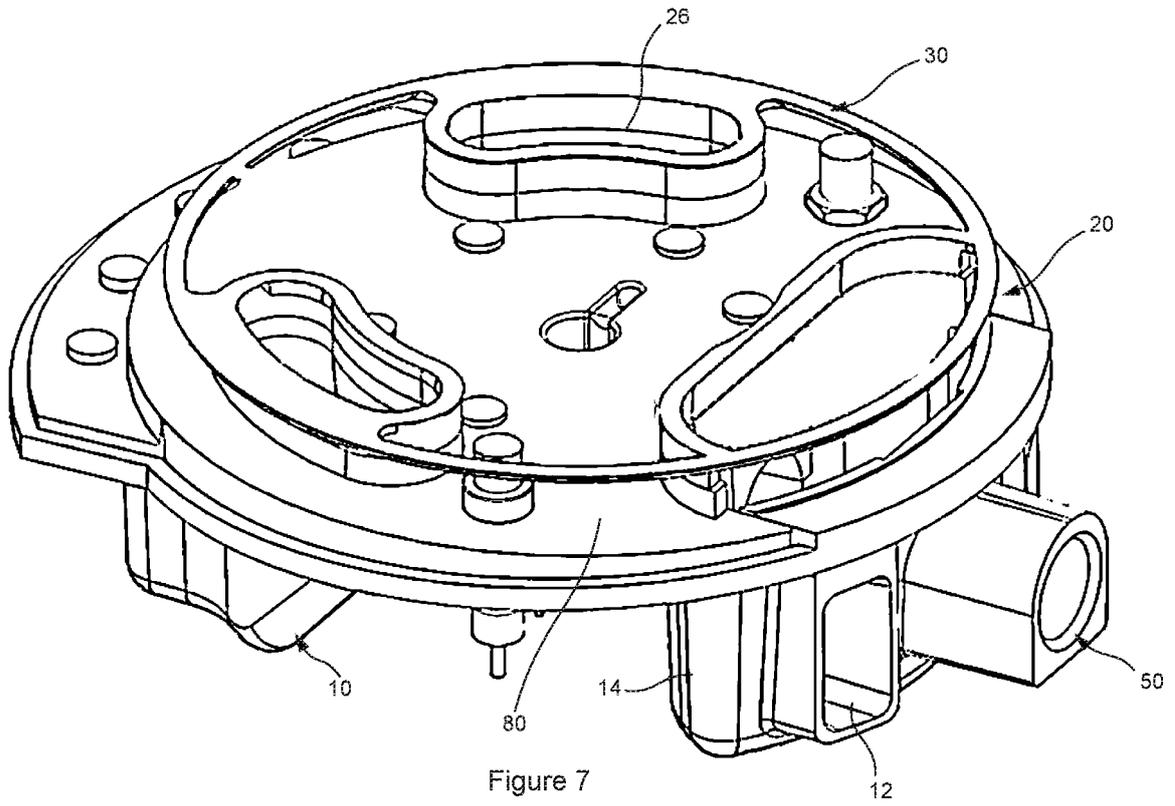


Figure 6



**REFERENCES CITED IN THE DESCRIPTION**

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