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(54) **CONTROL ASSEMBLY FOR GAS OVENS**

STEUERUNGSANORDNUNG FÜR GASÖFEN

ASSEMBLAGE DE COMMANDE POUR DES FOURS A GAZ

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(73) Proprietor: **E.G.O. ELEKTRO-GERÄTEBAU GmbH
75038 Oberderdingen (DE)**

(72) Inventor: **AMATI, Carlo
I-23893 Cassago Brianza (IT)**

(74) Representative: **Patentanwälte
Ruff, Wilhelm, Beier, Dauster & Partner
Postfach 10 40 36
70035 Stuttgart (DE)**

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Description

[0001] The present invention relates to a control assembly for gas ovens, in particular for gas oven burners with a system for minimum adjustment of the oven.

[0002] US 4,020,870 discloses a convertible gas valve that can be operated with different kinds of gas, for example LP gas on the one hand and natural gas on the other hand. By providing an insert in a valve body with several gasways with different cross-sections and different ways of activating them, an adaption for a minimum gas-flow for different sorts of gas can be achieved.

[0003] FR 15170003 A1 discloses a similar gas valve with an insert in a valve body having four different gas ways with different cross-sections. By way of alternatively adjusting the insert an adaption to different gas sorts for a minimal gas-flow can be achieved.

[0004] Usually, in gas ovens of this type, a thermostat carries out temperature measurement within the oven and when this temperature reaches a predetermined value the gas flow rate to the burner is reduced. Consequently, the oxidation-reduction reaction within the burner takes place with a reduced fuel supply, leading to a decrease in the amount of thermal energy generated and therefore to temperature lowering within the oven.

[0005] In fact, due to the fact that the oven is not an adiabatic system, the temperature within the oven becomes stable around a value given by the balance between the energy generated by the burner and the energy transferred by the oven to the surrounding atmosphere.

[0006] To put the above described process into practice, the known-art ovens take advantage of control assemblies substantially consisting of a large number of valves and several pneumatic circuits. In particular, in order to be able to ensure the maximum fuel flow rate, a valve is operatively associated with a duct having an inlet and an outlet for the combustible gas, while the minimum gas flow rate is obtained through an independent circuit comprising another valve associated with another duct having a gas outlet and a gas inlet. In this manner, when the oven is switched on, the valves controlling the maximum and minimum flow rates are open and the gas reaches the burner.

[0007] When the burner reaches the preestablished temperature, the maximum-flow rate valve closes while the minimum-flow rate valve keeps open.

[0008] Obviously, the minimum-flow rate duct has suitable sizes to enable passage of a predetermined gas amount, establishment of these sizes being carried out on the passage orifice of the valve or by providing a narrowing portion upstream or downstream of the valve.

[0009] In some control assemblies, this establishment of sizes is carried out on a rod or pin through which the gas is forced to pass when the control assembly is in a minimum-flow rate configuration. The passage section is univocally determined by an orifice present in the pin. In this way, the combustible gas is urged to pass through the orifice which determines the gas flow rate delivered

to the burner.

[0010] The Applicant has found that the control assemblies for gas ovens of the known art can be improved under different points of view.

5 [0011] In fact, sometimes it is necessary to supply the oven with combustible gas different from the planned gas.

10 [0012] In control assemblies of the known art change of the type of combustible gas used for the oxidation-reduction reaction in the burner is not possible without at least partly dismantling or even fully replacing the assembly itself.

15 [0013] This hindrance results from the fact that when the type of combustible gas is changed, even if some thermodynamic properties remain almost unchanged, there is a change in the physical properties of the gas such as the heat value for example (pressure and temperature remaining the same).

20 [0014] In order to be able to ensure the same supply of thermal energy in all cases, it is therefore necessary to change the gas flow rate to the burner. This requirement is particularly compulsory as regards the minimum gas flow rate.

25 [0015] In fact, to be sure that the air-gas mixture remains within the inflammability limits, it is not possible for the minimum gas flow rate to take any values.

30 [0016] Therefore the passage section of the gas in the minimum flow rate duct is required to be changed. In the devices of the known art, to operate a change in the type of combustible gas it is necessary to change the type of valve or the section of the narrowing portion of the duct, or the pin, which will involve partial dismantling of the control assembly, which operation is to be carried out by qualified technical staff.

35 [0017] Another drawback of the control assemblies of the known art resides in that the control assemblies of known type are bulky, of reduced compactness and are made up of several structurally independent bodies.

40 [0018] In this context, the technical task underlying the present invention is to devise a control assembly for gas ovens in which change of the type of combustible gas used is made possible.

45 [0019] The present invention also aims at devising a control assembly for gas ovens which is compact, of reduced bulkiness and easy maintenance.

[0020] The technical task and the aim specified are substantially achieved by a control assembly for gas ovens characterised in that it comprises one or more of the technical solutions claimed in the appended claims.

50 [0021] The description of a preferred but not exclusive embodiment of a control assembly for gas ovens is now given by way of non-limiting example, and illustrated in the accompanying drawings, in which:

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- Fig. 1 is a section view of the control assembly for gas ovens in accordance with the present invention;
 - Fig. 2 is a side view of a detail of the control assembly seen in Fig. 1;

- Fig. 3 is a perspective view of the detail in Fig. 2;
- Fig. 4 is a perspective view of the control assembly seen in Fig. 1 with some parts removed for better view of others.

[0022] With reference to the drawings, a control assembly for gas ovens has been identified as a whole with reference numeral 1.

[0023] The control assembly for gas ovens 1 comprises a valve body 2, an inlet station 3 and an outlet station 4 for the combustible gas.

[0024] The inlet and outlet stations 3 and 4 are physically connected by connecting means 5 consisting of a main duct 9. The control assembly 1 further comprises at least one valve 6 operatively active on the main duct 9.

[0025] Advantageously, the control assembly 1 comprises selecting means 8 to select a type of combustible gas, which means is operatively active on the main duct 9.

[0026] The control assembly further comprises at least two valves 6, 7 connected to each other in parallel through the main duct 9. More particularly, the main duct 9 starts from the gas inlet station 3, meets the first valve 6 and the second valve 7 and ultimately reaches the outlet station 4. A branch 10 of the main duct leads off from one of the two valves, in particular the first one 6, and it joins the main duct 9 close to the outlet station 4, thus defining the duct of minimum gas flow rate.

[0027] Advantageously active on the duct section or branch 10 leading off from one of the two valves, the first one 6 as said, is the selecting means 8 of the type of combustible gas; in this way a minimum-flow rate duct is defined while the main-duct 9 section operatively concerned with the other valve 7 defines a maximum-flow rate duct.

[0028] As said, the selecting means 8 interferes with the main duct 9 at least partly, in particular with the duct section 10. Said section 10 is therefore divided into two duct halves 12 and 13, in particular upstream of the selecting means 8; more specifically, defined between the valve 6 and the selecting means 8 is a gas delivery duct half 12, and a gas discharge duct half 13 is defined downstream of the selecting means 8, more particularly between the valve 6 and the gas outlet station 4.

[0029] In detail, valve 6 acts on the duct section 10 opening and closing it and in any case leaving the main duct 9 always open between the two valves 6 and 7. Valve 7 opens and closes the connection between the valve 7 itself and the outlet station 4 and defines the duct of maximum gas flow rate.

[0030] The selecting means 8 comprises a peg 11 that, as viewed from Figs. 2 and 3, includes a head 14 which, at the upper part thereof, has a substantially frustoconical portion 15 formed with a through hole 16 parallel to its symmetry axis and, at the lower part thereof, has a substantially cylindrical portion 17 formed with a through hole 18 parallel to its symmetry axis.

[0031] The frustoconical 15 and cylindrical 17 portions are connected to each other in such a manner that the

two holes are aligned and in communication.

[0032] Preferably, the cylindrical portion 17 and frustoconical portion 15 are of one piece construction but they can also be two distinct parts linked together.

[0033] Advantageously, the substantially cylindrical portion 17 comprises a plurality of radial holes 19 of different diameters. Holes 19 extend until they reach the through hole 18 of the cylindrical portion.

[0034] The holes 19 of different diameters that, as said, are part of the selecting means 8 are susceptible of alternately facing the delivery duct half 12 and communicating with the discharge duct half 13; in this way a first union section 20 is defined which enables the gas to pass from the delivery duct half 12 to the discharge duct half 13.

[0035] The discharge duct half 13 comprises a seat 21 the shape of which matches that of the frustoconical portion 15. There is an at least partial engagement of the frustoconical portion 15 in the seat 21, so that second union sections 22 are defined between the delivery and discharge duct halves.

[0036] The peg 11 further comprises a base 23 for the head 14. The base 23, preferably of one piece construction with the cylindrical portion 17 and the frustoconical portion 15, is coupled with the valve body 2 at the portion of duct 9 concerned with peg 11.

[0037] Advantageously, in accordance with a first embodiment shown, this coupling is of the slidable and rotatable type, i.e. the base can slide and simultaneously turn within the valve body 2, enabling the peg 11 to move forward and rotate. This coupling, obtained for example by means of a thread on a preferably cylindrical base 23 and a corresponding thread on the portion of the valve body 2 housing the base itself (screw-nut screw coupling), enables the frustoconical portion 15 to engage the seat 21 conforming in shape to the latter, in an adjustable manner. This allows the second union section 22 between the delivery duct half 12 and the discharge duct half 13 to be made in a continuously adjustable manner between a union section of zero area, when the frustoconical portion 15 is fully inserted in the seat 21, and a union section of maximum area, when the frustoconical portion 15 is only partly inserted in the seat 21.

[0038] In addition, rotation associated with translation of the peg allows the holes 19 of the cylindrical portion 17, formed with different sizes, to alternately face the delivery duct half 12, thus obtaining different first sections 20 for gas passage.

[0039] In another embodiment, coupling between base 23 and valve body 2 takes place only rotatably. In this way, the second union section 22 has a defined area which is unmodifiable, while the area of the first union section 20 can be adjusted through rotation of the peg that alternately on the delivery duct half 12 faces holes 19 of different sizes. The last-mentioned type of coupling between the base 23 of peg 11 and the valve body 2 is obtained by a bayonet fitting, for example.

[0040] The control assembly further comprises another valve 24 connected in parallel with the two valves 6

and 7. In particular, valve 24 is connected to valve 7 by a secondary duct 25. The secondary duct after interposition of valve 24, goes on and is connected to another gas outlet station 26 that is independent of the outlet station 4.

[0041] In addition, to enable delivery of combustible gas to all valves 6, 7 and 24 to be suddenly stopped, the control assembly 1 is provided with a main valve 27 operatively connected to the main, duct 9, downstream of the gas inlet station 3 and upstream of valves 6, 7 and 24.

[0042] All or part of the mentioned valves can be solenoid valves operated by a thermostat as shown in the following.

[0043] According to the invention, the valve body 2 is an enbloc piece housing the inlet station 3, outlet station 4, main duct 9 and selecting means 8.

[0044] Furthermore, as well-apparent from Fig. 4, the enbloc valve body 2 comprises seats 28 to house the valves 6, 7, 24 and 27, seats 29 to connect the users to the gas outlet station 4 and one seat 30 to connect one delivery duct to the gas inlet station 3. In this way all elements constituting the control assembly 1 are contained within a single body constituting the valve body 2.

[0045] In use, the combustible gas enters the inlet station 3 and through the main duct 9 said gas reaches valves 6 and 7 which are open so that the gas can reach the outlet station 4. In this manner the maximum gas flow rate is ensured.

[0046] When the oven temperature reaches the pre-established temperature, a thermostat causes release of the solenoid valve 7 so that it is closed.

[0047] Therefore passage of gas only occurs in the duct section 10, and thus in the delivery duct half 12, and reaches peg 11. Advantageously, the hole 19 facing the last-mentioned duct, possibly in co-operation with the second union section 22, enables passage of gas into the discharge duct half 13 that in turn feeds the end portion of the main duct 9.

[0048] In this way, only a predetermined amount of gas (depending on the size of the first and second passage sections) is supplied to the outlet station 4, which will give rise to the minimum gas flow rate.

[0049] Advantageously, to change the type of gas supplied, it is sufficient to act on the base 23 of peg 11 and rotate it in order to change the first 20 and possibly the second 22 union sections to adapt the control assembly 1 to the new type of gas.

[0050] Valve 24 can be usefully employed to supply a grill; in fact this valve is not part either of the maximum-flow rate circuit or of the minimum-flow rate circuit.

[0051] It should be appreciated that the control assembly for gas ovens in accordance with the present invention enables achievement of the above mentioned aims.

[0052] In fact, due to presence and conformation of the peg, the type of gas to be used can be selected by merely rotating the peg in a suitable manner within the peg seat, without being necessarily obliged to resort to the aid of a qualified technical person and to dismantle

the control assembly, not even partly.

[0053] In addition, the described control assembly, due to the reduced number of its constituent elements (the control assembly contemplates a single inlet station for the combustible gas and two valves at most, to adjust the gas flow rate), allows all the components to be housed in a single body or valve body, thereby ensuring a great compactness of the whole assembly as well as easy maintenance of same.

Claims

1. A control assembly for gas ovens comprising a valve body (2), an inlet station (3) for the combustible gas, an outlet station (4) for the combustible gas, a main duct (9) connecting the gas inlet station (3) to the gas outlet station (4), the control assembly comprising selecting means (8) associated with the main duct (9) to selectively determine a minimum gas flow rate depending on the type of combustible gas being supplied to the inlet station (3), **characterised in that** it further comprises at least two valves (6, 7) connected in parallel through the main duct (9), wherein the selecting means (8) is active on a duct section (10) concerning one alone (6) of said valves and defining a duct of minimum gas flow rate; the other valve (7) acting on another section of the main duct defining a maximum-flow rate duct, wherein it further comprises a main valve (27) operatively located between the gas inlet station (3) and the valves (6, 7), wherein the valve body (2) is an enbloc piece and houses the combustible gas inlet station (3), combustible gas outlet station (4), main duct (9) and selecting means (8), wherein the enbloc valve body (2) further comprises seats (28) to house the valves (6, 7, 27), seats (29) to connect the users to the gas outlet station (4) and one seat (30) to connect one delivery duct to the gas inlet station (3).
2. A control assembly as claimed in claim 1, **characterised in that**, after establishing the type of combustible gas to be supplied, the selecting means (8) is set to a minimum-flow rate position, further or continuous adjustments of the minimum flow rate not being carried out on said gas.
3. A control assembly as claimed in claim 1, **characterised in that** the selecting means (8) can be configured in a plurality of operating positions each of which corresponds to the respective minimum flow rate of one type of combustible gas.
4. A control assembly as claimed in claim 1, **characterised in that** the main duct (9) comprises the maximum-flow rate duct in fluid communication with the inlet station (3) and the outlet station (4), the control assembly further comprising the valve (7) active on

said maximum-flow rate duct at least to enable or inhibit gas passage through said maximum-flow rate duct.

5. A control assembly as claimed in claim 4, **characterised in that** the main duct (9) brings the inlet station (3) and outlet station (4) into fluid communication at least through the maximum-flow rate duct on which said valve (7) is active and through the minimum-flow rate duct on which said selecting means (8) is active. 5
6. A control assembly as claimed in claim 1, **characterised in that** the selecting means (8) interferes at least partly with said main duct (9) and defines a gas delivery duct half (12) upstream of the selecting means (8), and a gas discharge duct half downstream of the selecting means (8). 10
7. A control assembly as claimed in claim 6, **characterised in that** the selecting means (8) comprises a portion (17) formed with a plurality of holes (19) having different opening sizes; which holes (19) are susceptible of being alternately brought to face the delivery duct half (12), being in communication with the discharge duct half (13) and defining canalisa- 20
tions (20) with different gas flow rates between the delivery (12) and discharge (13) duct halves. 25
8. A control assembly as claimed in claim 7, **characterised in that** the selecting means (8) comprises a peg (11), which peg includes a head (14) having a substantially frustoconical portion (15) formed with a through hole (16) that is substantially parallel to its symmetry axis, and a substantially cylindrical portion 30
(17) formed with a through hole (18) parallel to its symmetry axis, the two portions (15, 17) being connected to each other, being made as a one piece construction or separately, and having the respec- 35
tive through holes (16, 18) in mutual communication, the above mentioned holes (19) being radially disposed on the cylindrical portion (17) and communicating with the through holes (16, 18). 40
9. A control assembly as claimed in claim 8, **characterised in that** the discharge duct half (13) comprises a seat (21) conforming in shape to said frustoconical portion (15), the frustoconical portion engaging at least partly in said seat (21) and defining union sections (22) between the delivery (12) and discharge 45
(13) duct halves. 50
10. A control assembly as claimed in claim 8 or 9, **characterised in that** the peg (11) further comprises a base (23) for the head (21), said base (23) being engaged in said valve body (2) either alternately slidably and rotatably in the valve body (2) itself thereby forming the first (20) and second (22) sections for 55

adjustable union, or only rotatably in said valve body (2) thereby achieving and regulating a fluid communication between the delivery (12) and discharge (13) ducts with canalisations of different gas flow rates.

11. A control assembly as claimed in claim 1, **characterised in that** it comprises a further valve (24) connected in parallel to said valves (6, 7) and a second outlet station (26) for the combustible gas connected to said further valve (24).
12. A control assembly as claimed in claim 11, **characterised in that** the valves (6, 7, 24) are solenoid valves operated by a thermostat.

Patentansprüche

1. Steuerungsanordnung für Gasöfen umfassend einen Ventilkörper (2), eine Einlasssstelle (3) für das Brenngas, eine Auslasssstelle (4) für das Brenngas, eine Hauptleitung (9), die die Gaseinlasssstelle (3) mit der Gasauslasssstelle (4) verbindet, wobei die Steuerungsanordnung Auswahlmittel (8) aufweist, die der Hauptleitung (9) zugeordnet sind, um in Abhängigkeit von der Art des der Einlasssstelle (3) zugeführten Brenngases einen minimalen Gasdurchfluss selektiv zu bestimmen, **dadurch gekennzeichnet, dass** sie des Weiteren mindestens zwei Ventile (6, 7) aufweist, die durch die Hauptleitung (9) parallel verbunden sind, wobei das Auswahlmittel (8) auf einen Leitungsabschnitt (10) wirkt, der ein einzelnes (6) der Ventile betrifft und eine Leitung mit minimalem Gasdurchfluss definiert; wobei das andere Ventil (7) auf einen anderen Abschnitt der Hauptleitung wirkt, der eine Leitung mit maximalem Gasdurchfluss definiert, wobei sie des Weiteren ein Hauptventil (27) aufweist, das in Wirkverbindung zwischen der Gaseinlasssstelle (3) und den Ventilen (6, 7) angeordnet ist, wobei der Ventilkörper (2) einteilig ausgebildet ist und die Brenngaseinlasssstelle (3), die Brenngasauslasssstelle (4), die Hauptleitung (9) und die Auswahlmittel (8) aufnimmt, wobei der einteilige Ventilkörper (2) des Weiteren Sitze (28), die die Ventile (6, 7, 27) aufnehmen, Sitze (29), die die Verbraucher mit der Gasauslasssstelle (4) verbinden, und einen Sitz (30) zum Verbinden einer Abgabelleitung mit der Gaseinlasssstelle (3) aufweist.
2. Steuerungsanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** nach Ermitteln der Art des zuzuführenden Brenngases das Auswahlmittel (8) auf eine Minimaldurchflussposition gesetzt ist, wobei bei diesem Gas keine weiteren oder fortlaufenden Einstellungen des Minimaldurchflusses vorgenommen werden.

3. Steuerungsanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Auswahlmittel (8) mit einer Mehrzahl von Betriebspositionen ausgebildet sein kann, wobei jede mit dem zugehörigen Minimaldurchfluss einer Art von Brenngas korrespondiert. 5
4. Steuerungsanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Hauptleitung (9) die Maximaldurchflussleitung in Fluidkommunikation mit der Einlassstelle (3) und der Auslassstelle (4) aufweist, wobei die Steuerungsanordnung des Weiteren das Ventil (7) aufweist, das auf die Maximaldurchflussleitung wirkt, um mindestens einen Gasdurchtritt durch die Maximaldurchflussleitung freizugeben oder zu sperren. 10
5. Steuerungsanordnung nach Anspruch 4, **dadurch gekennzeichnet, dass** die Hauptleitung (9) die Einlassstelle (3) und die Auslassstelle (4) mindestens durch die Maximaldurchflussleitung, auf die das Ventil (7) wirkt, und durch die Minimaldurchflussleitung, auf die das Auswahlmittel (8) wirkt, in Fluidkommunikation bringt. 20
6. Steuerungsanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Auswahlmittel (8) mindestens teilweise mit der Hauptleitung (9) zusammenwirkt und eine Gasabgabeleitungshälfte (12) vor dem Auswahlmittel (8) und eine Gasablassleitungshälfte hinter dem Auswahlmittel (8) definiert. 25
7. Steuerungsanordnung nach Anspruch 6, **dadurch gekennzeichnet, dass** das Auswahlmittel (8) einen Teil (17) aufweist, der mit einer Mehrzahl von Öffnungen (19) mit unterschiedlichen Öffnungsgrößen ausgebildet ist, wobei die Öffnungen (19) abwechselnd zur Abgabeleitungshälfte (12) gebracht werden können, wobei sie mit der Ablassleitungshälfte (13) in kommunizierender Verbindung stehen und Kanäle (20) mit unterschiedlichen Gasdurchflüssen zwischen der Abgabe- (12) und der Ablassleitungshälfte (13) definieren. 30
8. Steuerungsanordnung nach Anspruch 7, **dadurch gekennzeichnet, dass** das Auswahlmittel (8) einen Verschluss (11) aufweist, wobei der Verschluss einen Kopf (14) mit einem im Wesentlichen kegelförmigen Teil (15) aufweist, der mit einer durchgehenden Öffnung (16) ausgebildet ist, die im Wesentlichen parallel zu seiner Symmetrieachse verläuft, und einen im Wesentlichen zylindrischen Teil (17) aufweist, der mit einer durchgehenden Öffnung (18) ausgebildet ist, die parallel zu seiner Symmetrieachse verläuft, wobei die beiden Teile (15, 17) miteinander verbunden sind, als einteilige Konstruktion oder getrennt ausgebildet sind und die zugehörigen durchgehenden Öffnungen (16, 18) in kommunizierender Verbindung miteinander stehen, wobei 45

die oben genannten Öffnungen (19) auf dem zylindrischen Teil (17) radial angeordnet sind und mit den durchgehenden Öffnungen (16, 18) in kommunizierender Verbindung stehen.

9. Steuerungsanordnung nach Anspruch 8, **dadurch gekennzeichnet, dass** die Ablassleitungshälfte (13) einen Sitz (21) umfasst, der in seiner Form dem kegelförmigen Teil (15) angepasst ist, wobei der kegelförmige Teil mindestens teilweise in den Sitz (21) eingreift und Anschlussabschnitte (22) zwischen der Abgabe- (12) und der Ablassleitungshälfte (13) definiert. 50
10. Steuerungsanordnung nach Anspruch 8 oder 9, **dadurch gekennzeichnet, dass** der Verschluss (11) des Weiteren eine Basis (23) für den Kopf (21) aufweist, wobei die Basis (23) an dem Ventilkörper (2) eingreift, entweder abwechselnd verschiebbar und drehbar im Ventilkörper (2) selbst, wodurch ein erster (20) und ein zweiter (22) Abschnitt zum einstellbaren Anschluss ausgebildet werden, oder nur drehbar im Ventilkörper (2), wodurch eine Fluidkommunikation zwischen der Abgabe- (12) und der Ablassleitung (13) mit Kanälen unterschiedlicher Gasdurchflüsse erreicht und reguliert wird. 25
11. Steuerungsanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** sie ein weiteres Ventil (24), das parallel mit den Ventilen (6, 7) verbunden ist, und eine zweite Auslassstelle (26) für das Brenngas aufweist, die mit dem weiteren Ventil (24) verbunden ist. 30
12. Steuerungsanordnung nach Anspruch 11, **dadurch gekennzeichnet, dass** die Ventile (6, 7, 24) Solenoidventile sind, die durch einen Thermostat betätigt werden. 35

Revendications

1. Ensemble de commande pour des fours à gaz, comprenant un corps de soupape (2), un poste d'entrée (3) pour le gaz combustible, un poste de sortie (4) pour le gaz combustible, un conduit principal (9) reliant le poste d'entrée de gaz (3) au poste de sortie de gaz (4), l'ensemble de commande comprenant un moyen de sélection (8) associé au conduit principal (9) pour déterminer, de manière sélective, un débit de gaz minimum en fonction du type de gaz combustible alimenté au poste d'entrée (3), **caractérisé en ce qu'il** comprend en outre au moins deux soupapes (6, 7) reliées en parallèle à travers le conduit principal (9), 50
le moyen de sélection (8) étant actif sur une section de conduit (10) concernant seulement une (6) desdites soupapes et définissant un conduit de débit de 55

- gaz minimum ; l'autre soupape (7) agissant sur une autre section du conduit principal définissant un conduit de débit maximum, l'ensemble de commande comprenant en outre une soupape principale (27) située fonctionnellement entre le poste d'entrée de gaz (3) et les soupapes (6, 7), le corps de soupape (2) étant d'une seule pièce et recevant le poste d'entrée de gaz combustible (3), le poste de sortie de gaz combustible (4), le conduit principal (9) et le moyen de sélection (8), le corps de soupape d'une seule pièce (2) comprenant en outre des sièges (28) pour recevoir les soupapes (6, 7, 27), des sièges (29) pour relier les utilisateurs au poste de sortie de gaz (4) et un siège (30) pour relier un conduit de distribution au poste d'entrée de gaz (3).
2. Ensemble de commande selon la revendication 1, **caractérisé en ce que**, après l'établissement du type de gaz combustible à alimenter, le moyen de sélection (8) est réglé à une position de débit minimum, et des ajustements supplémentaires ou continus du débit minimum ne sont pas effectués sur ledit gaz.
3. Ensemble de commande selon la revendication 1, **caractérisé en ce que** le moyen de sélection (8) peut être configuré dans une pluralité de positions de fonctionnement, chacune d'entre elles correspondant à un débit minimum respectif d'un type de gaz combustible.
4. Ensemble de commande selon la revendication 1, **caractérisé en ce que** le conduit principal (9) comprend le conduit de débit maximum en communication fluïdique avec le poste d'entrée (3) et le poste de sortie (4), l'ensemble de commande comprenant en outre la soupape (7) active sur ledit conduit de débit maximum, au moins pour permettre ou inhiber le passage de gaz à travers ledit conduit de débit maximum.
5. Ensemble de commande selon la revendication 4, **caractérisé en ce que** le conduit principal (9) met le poste d'entrée (3) et le poste de sortie (4) en communication fluïdique au moins à travers le conduit de débit maximum sur lequel ladite soupape (7) est active et à travers le conduit de débit minimum sur lequel ledit moyen de sélection (8) est actif.
6. Ensemble de commande selon la revendication 1, **caractérisé en ce que** le moyen de sélection (8) interfère au moins en partie avec ledit conduit principal (9) et définit une moitié (12) de conduit de distribution de gaz en amont du moyen de sélection (8) et une moitié de conduit de décharge de gaz en aval du moyen de sélection (8).
7. Ensemble de commande selon la revendication 6, **caractérisé en ce que** le moyen de sélection (8) comprend une portion (17) formée avec une pluralité de trous (19) ayant différentes dimensions d'ouverture ; lesquels trous (19) sont susceptibles d'être amenés en alternance en face de la moitié de conduit de distribution (12), étant en communication avec la moitié de conduit de décharge (13) et définissant des canalisations (20) avec différents débits de gaz entre les moitiés de conduit de distribution (12) et de décharge (13).
8. Ensemble de commande selon la revendication 7, **caractérisé en ce que** le moyen de sélection (8) comprend une cheville (11), laquelle cheville comporte une tête (14) ayant une portion substantiellement tronconique (15) formée avec un trou traversant (16) qui est substantiellement parallèle à son axe de symétrie, et une portion substantiellement cylindrique (17) formée avec un trou traversant (18) parallèle à son axe de symétrie, les deux portions (15, 17) étant connectées l'une à l'autre, étant fabriquées d'une seule pièce ou séparément, et ayant les trous traversants respectifs (16, 18) en communication mutuelle, les trous (19) susmentionnés étant disposés radialement sur la portion cylindrique (17) et communiquant avec les trous traversants (16, 18).
9. Ensemble de commande selon la revendication 8, **caractérisé en ce que** la moitié de conduit de décharge (13) comprend un siège (21) de forme se conformant à celle de ladite portion tronconique (15), la portion tronconique s'engageant au moins partiellement dans ledit siège (21) et définissant des sections de liaison (22) entre les moitiés de conduit de distribution (12) et de décharge (13).
10. Ensemble de commande selon la revendication 8 ou 9, **caractérisé en ce que** la cheville (11) comprend en outre une base (23) pour la tête (21), ladite base (23) étant engagée dans ledit corps de soupape (2) soit de manière à pouvoir coulisser et tourner en alternance dans le corps de soupape (2) lui-même en formant ainsi les première (20) et deuxième (22) sections pour la liaison ajustable, soit de manière seulement rotative dans ledit corps de soupape (2) pour ainsi réaliser et réguler une communication fluïdique entre les conduits de distribution (12) et de décharge (13) avec des canalisations de différents débits de gaz.
11. Ensemble de commande selon la revendication 1, **caractérisé en ce qu'il** comprend une soupape supplémentaire (24) reliée en parallèle avec lesdites soupapes (6, 7) et un deuxième poste de sortie (26) pour le gaz combustible connecté à ladite soupape supplémentaire (24).
12. Ensemble de commande selon la revendication 11,

caractérisé en ce que les soupapes (6, 7, 24) sont des électrovannes actionnées par un thermostat.

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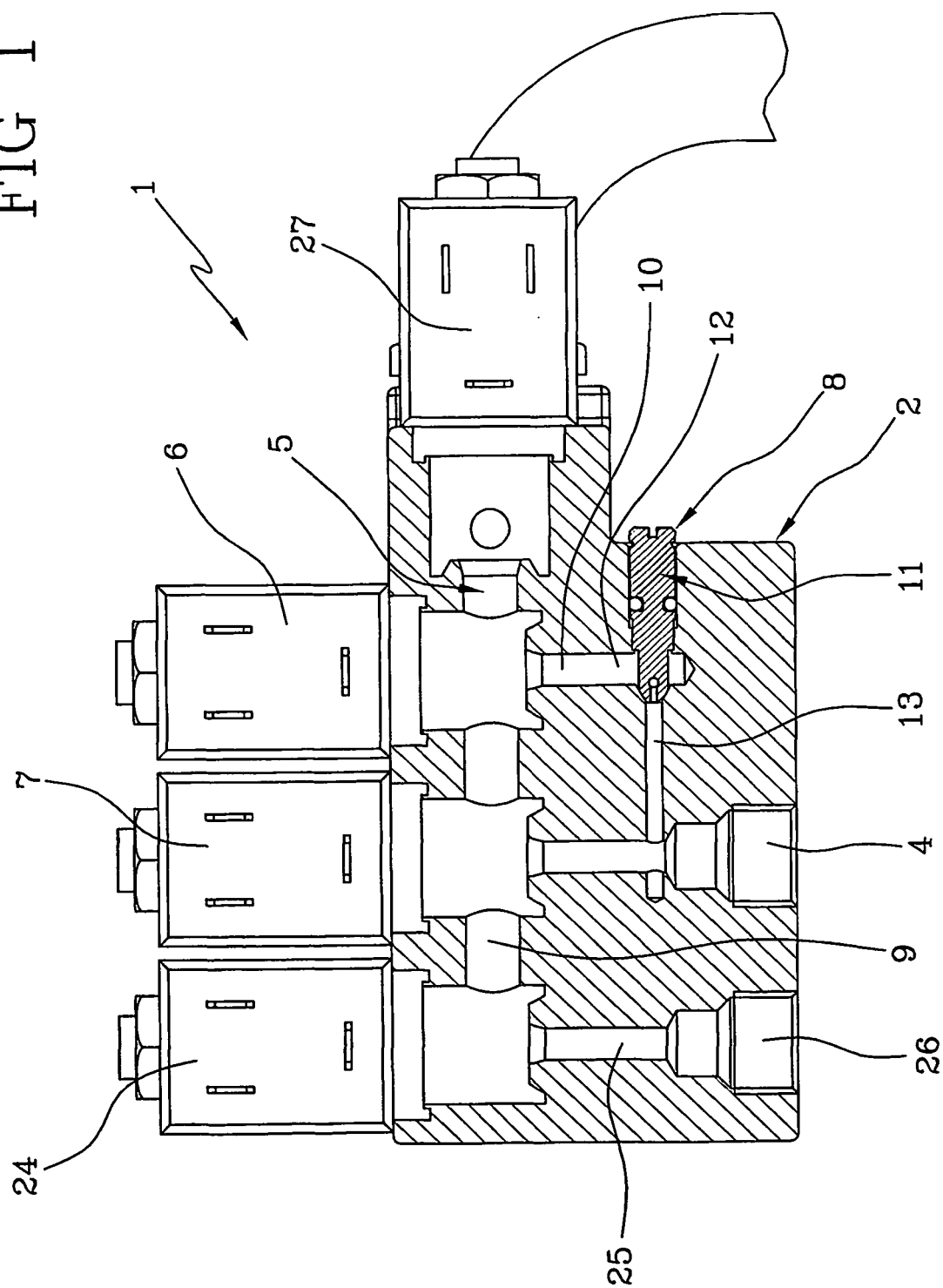
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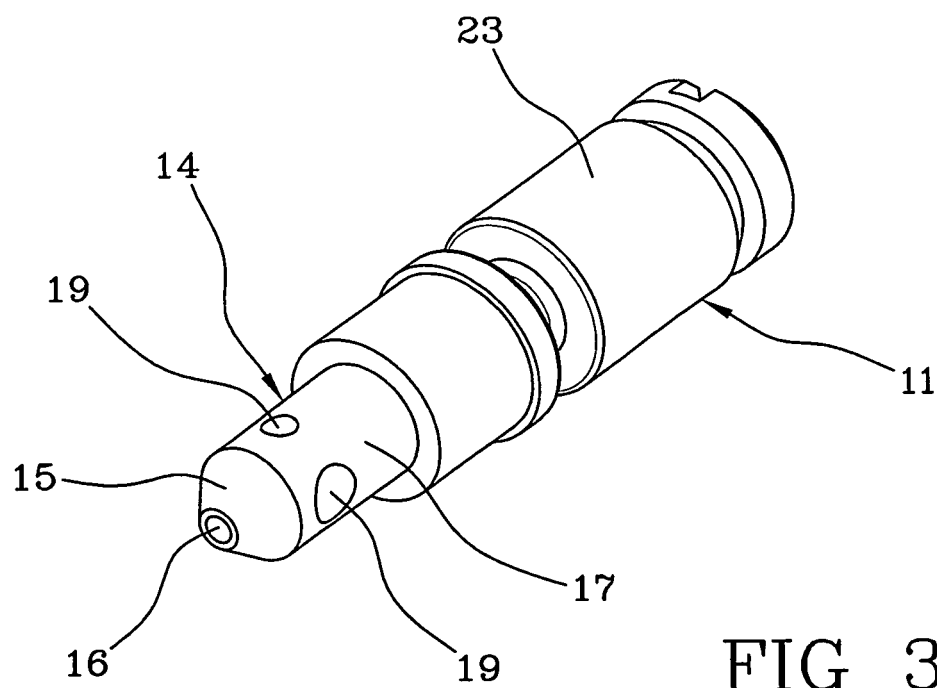
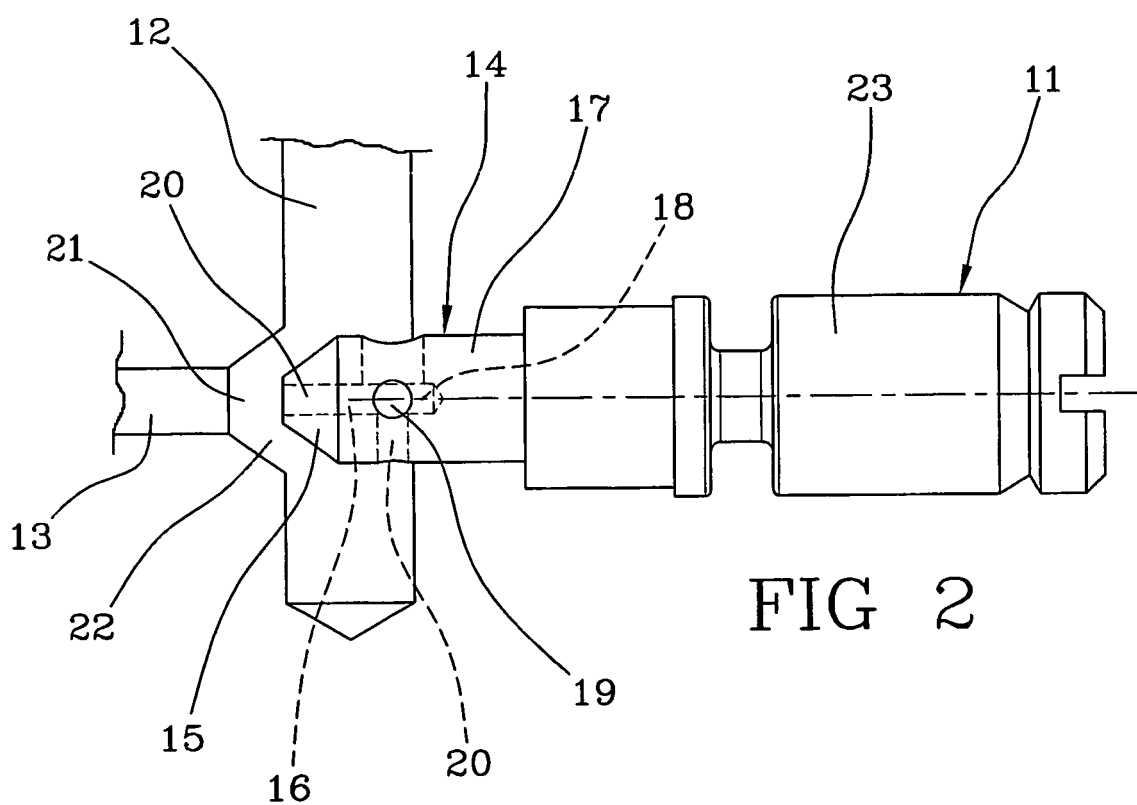
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FIG 1





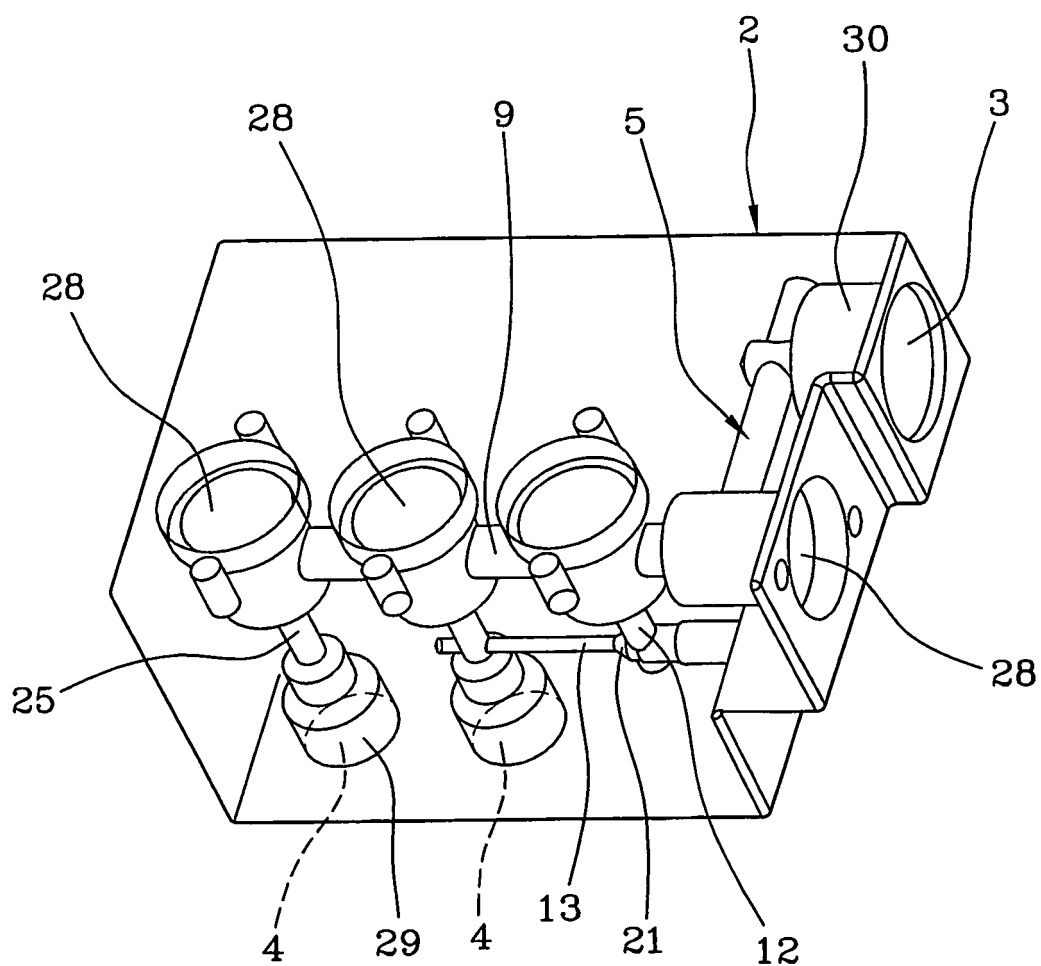


FIG 4

REFERENCES CITED IN THE DESCRIPTION

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