



(11) **EP 4 394 255 A1**

(12) **EUROPEAN PATENT APPLICATION**

- (43) Date of publication:
03.07.2024 Bulletin 2024/27

(21) Application number: **23213034.4**

(22) Date of filing: **29.11.2023**
- (51) International Patent Classification (IPC):
F24C 3/10^(2006.01) F24C 3/12^(2006.01)

(52) Cooperative Patent Classification (CPC):
F24C 3/103; F24C 3/126

(84) Designated Contracting States: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR Designated Extension States: BA Designated Validation States: KH MA MD TN (30) Priority: 28.12.2022 TR 202220960 (71) Applicant: Arçelik Anonim Şirketi 34445 Istanbul (TR)	(72) Inventors: • DEMİR, UNAL 34445 ISTANBUL (TR) • CEYHAN, ENGIN 34445 ISTANBUL (TR) • BEYTER, ENGIN 34445 ISTANBUL (TR) • ISNIK, SALIH 34445 ISTANBUL (TR) • AKSOY, FURKAN 34445 ISTANBUL (TR)
---	---

(54) **A COOKING DEVICE COMPRISING AN IGNITION SWITCH**

- (57) The present invention relates to a cooking device (100) comprising a body (101); a burner plate (102) having a plurality of burner groups (103) thereon for heating and/or cooking; a plurality of taps (3) which provide the transfer of the gas to be burned in the burner group
- (103) in the amount determined by the user; a knob (2) which is connected to each tap (3) and which can be moved by the user; and an ignition switch (4) which actuates the ignition of the burner group (103).

Description

[0001] The present invention relates to a cooking device comprising an improved ignition switch.

[0002] In the state of the art, cooking devices have at least one burner group whereon the product to be cooked/heated is placed. When the user places the cooking vessel on any one of the burner groups, he/she controls the relevant burner group with the knobs which are provided on the panel, each corresponding to a burner group.

[0003] In the cooking device, for example in a cooker, it is known to use an ignition switch connected to the knob to ignite each burner group. By means of said ignition system which eliminates the need for an igniter or similar component to ignite the existing gas, the user is only required to press and turn the knob. On the other hand, using an ignition switch for each knob increases the cost. Water, foodstuff residues or detergent residues leaking into the base of the tap while the user is cooking or cleaning may also cause said ignition switches to jam over time and perform constant ignition.

[0004] Gaskets and similar additional components are needed to protect said ignition switches from external factors. Moreover, switches which are not properly installed by the operator during the production process may become dislodged over time and perform constant ignition.

[0005] In the state of the art Turkish Patent No. TR 2014/05531, a cooking device is disclosed, comprising a lower casing; a burner table which is disposed on the lower casing and which has burners for heating and/or cooking; a plurality of taps which enable the gas to be burned to be transferred to the burners on the burner table in the amount determined by the user; and a gas pipe which carries the gas to be burned from the mains to the taps.

[0006] The aim of present invention is the realization of a cooking device comprising an ignition group wherein instead of using multiple ignition switches, only one is used and problems such as water leaks and possible dislodging of the switches are eliminated.

[0007] The cooking device of the present invention comprises a body; a burner plate having a plurality of burner groups thereon for heating and/or cooking; a plurality of taps which provide the transfer of the gas to be burned in the burner group in the amount determined by the user; a knob which is connected to each tap and which can be moved by the user; and an ignition switch which actuates the ignition of the burner group. Since only one ignition switch is used, advantages in terms of both labor and cost are provided.

[0008] The cooking device of the present invention comprises an actuation member which is positioned so as to move in a channel and which contacts the ignition switch with the movement received from the knob so as to enable the ignition switch to be actuated. By means of the actuation member, a mechanical and durable ac-

tuation function can be performed. Instead of the switch structure which can be provided at the base of the tap, only a mechanical spring structure is used in order to prevent the problems of water leakage and the switch dislodging.

[0009] The cooking device of the present invention comprises an actuation member which is positioned so as to move in a channel extending along each knob and which does not actuate the ignition switch in the first position and which, in the second position, contacts and actuates the ignition switch with the movement received from the knob. The actuation member comprises an actuation protrusion which aligns with each knob with the pressure of the spring when the cooking device is not yet in use. While the user presses and turns the desired knob, the actuation protrusion shifts from the first position to the second position. At this time, the ignition switch is enabled to be actuated.

[0010] The cooking device of the present invention comprises a spring which is connected to the actuation member such that the actuation member can return to the first position after shifting to the second position as the user moves the knob. Moreover, the relevant spring is positioned on the actuation member such that one end thereof bears against the channel. Thus, when the user stops gripping the knob, the actuation member under the pressure of the spring is released and moves in the opposite direction in the channel, shifting back to the first position.

[0011] The cooking device of the present invention comprises the knob comprising a knob base which is connected to a knob shaft on each tap and which contacts and pushes the actuation member with the pushing movement of the user. When the user presses the knob, the knob base contacts the actuation member. The knob base may be flat or have protruding or curved parts.

[0012] The cooking device of the present invention comprises a plurality of actuation protrusions which are provided on the actuation member, corresponding to each knob and which enable the actuation member to be moved in the channel with the movement received from the knob. The actuation protrusion which is an extension of the actuation member is positioned to be opposite to each knob. When said actuation protrusion is pushed by the knob base, the actuation member presses against the spring in the channel.

[0013] The cooking device of the present invention comprises an ignition switch which is positioned flush with the channel and which is suitable to be actuated by the actuation end of the actuation member extending out of the channel with the movement received from the knob. By using only one ignition switch, ignition can be performed at all burner groups. By means of this development, the ignition switch is positioned away from the knobs, rather than directly in the vicinity of the knob.

[0014] The cooking device of the present invention comprises a series of actuation protrusions which extend from the opening on the channel to each knob and which

are shaped in the form of a V so as to have a bent part. By means of said structure of the actuation protrusion, the actuation member can easily slide in the channel when the knob is pressed in a perpendicular direction.

[0015] The cooking device of the present invention comprises the actuation member comprising the actuation protrusion having a sliding surface inclined between 30° and 60° relative to the longitudinal axis of the channel. By means of the actuation protrusion which is inclined in this optimum range, the actuation member is enabled to move smoothly in the channel.

[0016] The cooking device of the present invention comprises a second type of actuation protrusion which extends on the actuation member corresponding to each knob and which is inclined between 30° and 60° relative to the longitudinal axis of the channel. Said second type of actuation protrusion extends from the actuation member in an inclined direction towards the knob.

[0017] The actuation member of the present invention may be manufactured from a metal wire or may have a width so as to extend to the lateral walls in the channel.

[0018] The cooking device realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

Figure 1 - is the perspective view of the gas tap group comprising a series of gas taps and the actuation member in the first position which has not yet actuated the ignition switch in an embodiment of the present invention.

Figure 2 - is a front view of the gas tap group shown in Figure 1.

Figure 3 - is the perspective view of a tap knob from the gas tap group shown in Figure 1 in the driven status and of the position where the actuation member shifts to the second position to actuate the ignition switch.

Figure 4 - is a front view of the gas tap group shown in Figure 3.

Figure 5 - is the front view of the detail A shown in Figure 2 showing the knob and the actuation protrusion in an enlarged manner.

Figure 6 - is the front view of the detail B shown in Figure 4 showing the knob driven by the user and the actuation protrusion driven by the knob in an enlarged manner.

Figure 7 - is the sideways view of the gas tap group related to an embodiment of the present invention.

Figure 8 - is the cross-sectional view along the line A-A in Figure 7, showing the gas tap group and the actuation member in the first position.

Figure 9 - is the sideways view of the gas tap group related to an embodiment of the present invention.

Figure 10 - is the cross-sectional view along the line A-A in Figure 9, showing the gas tap group and the actuation member in the second position.

Figure 11 - is the schematic view showing the actuation member, the spring and the ignition switch related to an embodiment of the present invention.

Figure 12 - is the schematic view wherein the actuation member and the spring shown in Figure 11 are positioned in the channel and connected to the ignition switch.

Figure 13 - is the schematic view showing the gas tap group having an actuation member in the first position, having the second type of actuation protrusion, related to an embodiment of the present invention.

Figure 14 - is a cooking device configured as a cooker suitable to be used in the present invention.

Figure 15 - is the cross-sectional view of the cooking device taken along the line A-A in Figure 14.

[0019] The elements illustrated in the figures are numbered as follows:

1. Gas tap group

11. Channel

12. Actuation member

121. Actuation protrusion

1211. Second type actuation protrusion

122. Actuation end

124. Bent part

125. Sliding surface

13. Spring

2. Knob

21. Gripping part

22. Knob shaft

23. Knob base

3. Tap

4. Ignition switch

100. Cooking device

101. Body

102. Burner plate

103. Burner group

[0020] The cooking device (100) of the present invention comprises a body (101); a burner plate (102) having a plurality of burner groups (103) thereon for heating and/or cooking; a plurality of taps (3) which provide the transfer of the gas to be burned in the burner group (103) in the amount determined by the user; a knob (2) which is connected to each tap (3) and which can be moved by the user; and an ignition switch (4) which actuates the ignition of the burner group (103). Advantageously, in the cooking device (100), there is only a single ignition switch (4) which is suitable for mechanical actuation. Thus, the need for using an ignition switch (4) for each tap (3) is eliminated and problems such as possible incorrect placement and grouping are prevented during the assembly.

[0021] The cooking device (100) of the present invention comprises an actuation member (12) which is positioned so as to move in a channel (11) and which contacts the ignition switch (4) with the movement received from the knob (2) so as to enable the ignition switch (4) to be actuated. Figure 1 shows a knob (2) which is not pressed by the user, and Figure 3 shows the actuation member (12) which is activated as said knob (2) is pressed. Accordingly, the actuation member (12) of the present invention is suitable to move in the channel (11) extending along each knob (2) and does not actuate the ignition switch (4) when in the first position, and, when in the second position, contacts and actuates the ignition switch (4) with the movement received from the knob (2). Thus, the need for using an ignition switch (4) in each tap (3) in the state of the art is eliminated and a mechanically actuated system is realized. Consequently, by not using an ignition switch (4) in each tap (3) in the gas tap group (1), the cost is reduced and technical problems such as possible non-ignition or jamming are prevented.

[0022] In an embodiment of the present invention, the cooking device (100) of the present invention comprises a spring (13) which is connected to the actuation member (12) such that the actuation member (12) can return to the first position after shifting to the second position as the user moves the knob (2). In another embodiment of the present invention, said spring (13) is positioned on the actuation member (12) as shown in Figure 8, and one end thereof bears against the channel (11). Thus, while moving in the channel (11), the actuation member (12) pressed by the knob (2) compresses said spring (13) in the channel (11). The energy accumulated by compressing said spring (13) is released when the user releases

the knob (2) and enables the actuation member (12) to shift to the first position as shown in Figure 1.

[0023] When the cooking device (100) of the present invention is in use, the user first grips and presses the hand-held gripping part (21) on the knob (2), then rotates the same to transfer as much gas as desired from the tap (3). During this pressing process, the knob (2) pushes the actuation member (12) and the actuation function for all burner groups (103) is performed by the ignition switch (4) and the burning process begins in the burner group (103) to which gas is supplied.

[0024] In an embodiment of the present invention, the knob (2) is connected to a cylindrically protruding knob shaft (22) which is provided on each tap (3). Said knobs (2) have a knob base (23) which contacts and pushes the actuation member (12) with the pushing movement of the user. As shown in detail in Figures 5 and 6, when the knob (2) is pushed towards the cooking device (100) by the user, the knob base (23) of the knob (2) contacts the actuation protrusion (121) of the actuation member (12) and enables the actuation member (12) to shift to the second position. Here, the actuation end (122) of the actuation member (12) in the second position extending out of the channel (11) contacts the ignition switch (4) or enters a certain area in the ignition switch (4), and actuates the ignition switch (4) to initiate ignition to burn the delivered gas.

[0025] In an embodiment of the present invention, the cooking device (100) of the present invention comprises a plurality of actuation protrusions (121) which are provided on the actuation member (12), corresponding to each knob (2) and which enable the actuation member (12) to be moved in the channel (11) with the movement received from the knob (2). Referring to Figure 1, the actuation member (12) comprises actuation protrusions (121) as many as the number of knobs (2) in the cooking device (100), and each actuation protrusion (121) is configured in a similar shape and form.

[0026] In an embodiment of the present invention, the ignition switch (4) is positioned in the same longitudinal axis direction, suitable for being actuated by the actuation end (122) of the actuation member (12) extending out of the channel (11). By means of said actuation end (122), the ignition switch (4) detects that the actuation member (12) is in the second position and starts the ignition process. Said ignition switch (4) may be a switch suitable for use in cookers in general and may be connected with a plurality of fixing members on an extension plate of the channel (11).

[0027] The actuation member (12) of the present invention comprises a series of actuation protrusions (121) which extend from the opening on the channel (11) to each knob (2) and which are shaped in the form of a V so as to have a bent part (124). Said part (124) is composed of an inclined part relative to the actuation member (12) and another part extending perpendicularly relative to said actuation member (12). The bent part (124) forms an angle of approximately 45° within itself. Here, by

means of the inclination of the actuation protrusion (121), the actuation member (12) is enabled to make a sliding movement in the channel (11). In an embodiment of the present invention, said actuation member (12) comprises the actuation protrusion (121) having a sliding surface (125) inclined between 30° and 60° relative to the longitudinal axis of the channel (11). As shown in Figure 4, said angle can be selected as 45°.

[0028] In an embodiment of the present invention, the cooking device (100) of the present invention comprises a second type of actuation protrusion (1211) which extends on the actuation member (12) corresponding to each knob (2) and which is inclined between 30° and 60° relative to the longitudinal axis of the channel (11). Again, just like the actuation protrusion (121), there is a second type of actuation protrusion (1211) corresponding to each knob (2). As shown in Figure 11, the actuation member (12) in the first position comprises the second type of actuation protrusions (1211) in the form of approximately 45° protrusions. When the knob (2) is pressed, the actuation member (12) moves by means of the inclined second type actuation protrusion (1211) and actuates the ignition switch (4). The second type of actuation protrusion (1211) which is obtained by using less material ensures that the system operates mechanically in a smooth manner.

[0029] In an embodiment of the present invention, the actuation member (12) can be manufactured from metal wire or can be configured to have a larger transversal cross-section. Said actuation member (12) may also be a wire rod manufactured from copper or metal by being wound in the form of a coil.

[0030] As shown in Figure 14, a gas cooker can be used as the cooking device (100) of the present invention. There are preferably four burner groups (103) of different sizes and in said burner group (103) there is a burner where the gas is ignited and burned.

Claims

1. A cooking device (100) **comprising** a body (101); a burner plate (102) having a plurality of burner groups (103) thereon for heating and/or cooking; a plurality of taps (3) which provide the transfer of the gas to be burned in the burner group (103) in the amount determined by the user; a knob (2) which is connected to each tap (3) and which can be moved by the user; and an ignition switch (4) which actuates the ignition of the burner group (103), **characterized by** an actuation member (12) which is positioned so as to move in a channel (11) and which contacts the ignition switch (4) with the movement received from the knob (2) so as to enable the ignition switch (4) to be actuated.
2. A cooking device (100) as in Claim 1, **characterized by** the actuation member (12) which is suitable to move in the channel (11) extending along each knob (2) and which does not actuate the ignition switch (4) when in the first position, and, when in the second position, contacts and actuates the ignition switch (4) with the movement received from the knob (2).
3. A cooking device (100) as in Claim 2, **characterized by** a spring (13) which is connected to the actuation member (12) such that the actuation member (12) can return to the first position after shifting to the second position as the user moves the knob (2).
4. A cooking device (100) as in any one of the above claims, **characterized by** a spring (13) which is positioned on the actuation member (12) and one end of which bears against the channel (11).
5. A cooking device (100) as in any one of the above claims, **characterized by** the knob (2) comprising a knob base (23) which is connected to a knob shaft (22) on each tap (3) and which contacts and pushes the actuation member (12) with the pushing movement of the user.
6. A cooking device (100) as in any one of the above claims, **characterized by** a plurality of actuation protrusions (121) which are provided on the actuation member (12), corresponding to each knob (2) and which enable the actuation member (12) to be moved in the channel (11) with the movement received from the knob (2).
7. A cooking device (100) as in any one of the above claims, **characterized by** an ignition switch (4) which is positioned as aligned with the channel (11) and which is suitable to be actuated by the actuation end (122) of the actuation member (12) extending out of the channel (11) with the movement received from the knob (2).
8. A cooking device (100) as in any one of the above claims, **characterized by** a series of actuation protrusions (121) which extend from the opening on the channel (11) to each knob (2) and which are shaped in the form of a V so as to have a bent part (124).
9. A cooking device (100) as in any one of the above claims, **characterized by** the actuation member (12) comprising the actuation protrusion (121) having a sliding surface (125) inclined between 30° and 60° relative to the longitudinal axis of the channel (11).
10. A cooking device (100) as in any one of the above claims, **characterized by** a second type of actuation protrusion (1211) which extends on the actuation member (12) corresponding to each knob (2) and which is inclined between 30° and 60° relative to the longitudinal axis of the channel (11).

11. A cooking device (100) as in any one of the above claims, **characterized by** an actuation member (12) which is manufactured from a metal wire.

5

10

15

20

25

30

35

40

45

50

55

Figure 1

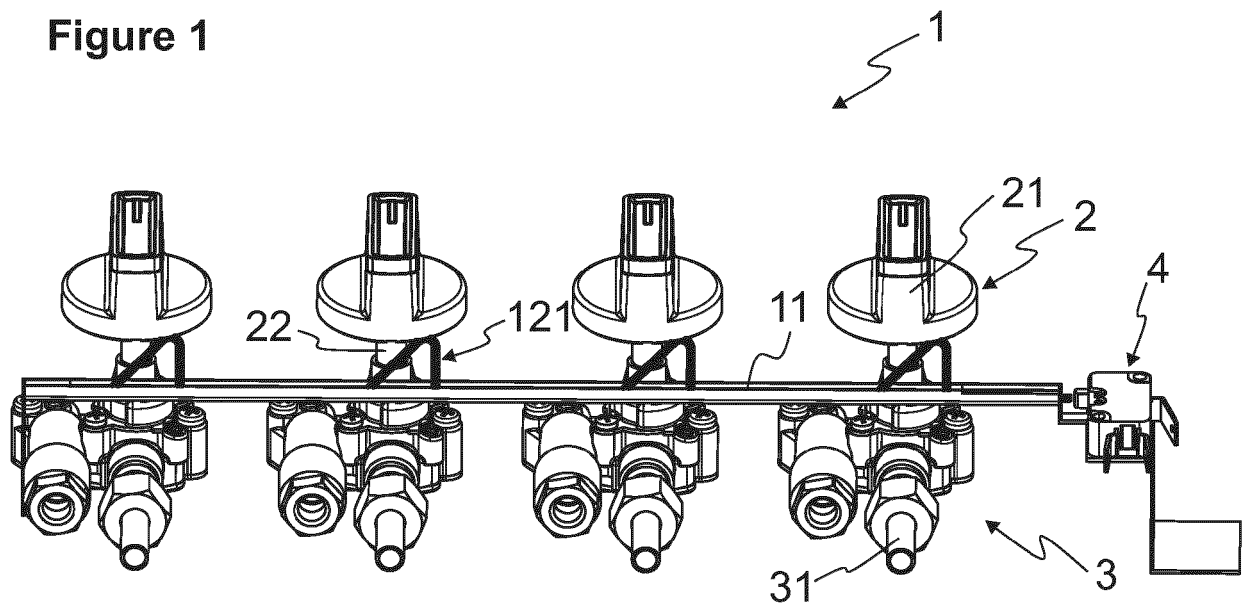


Figure 2

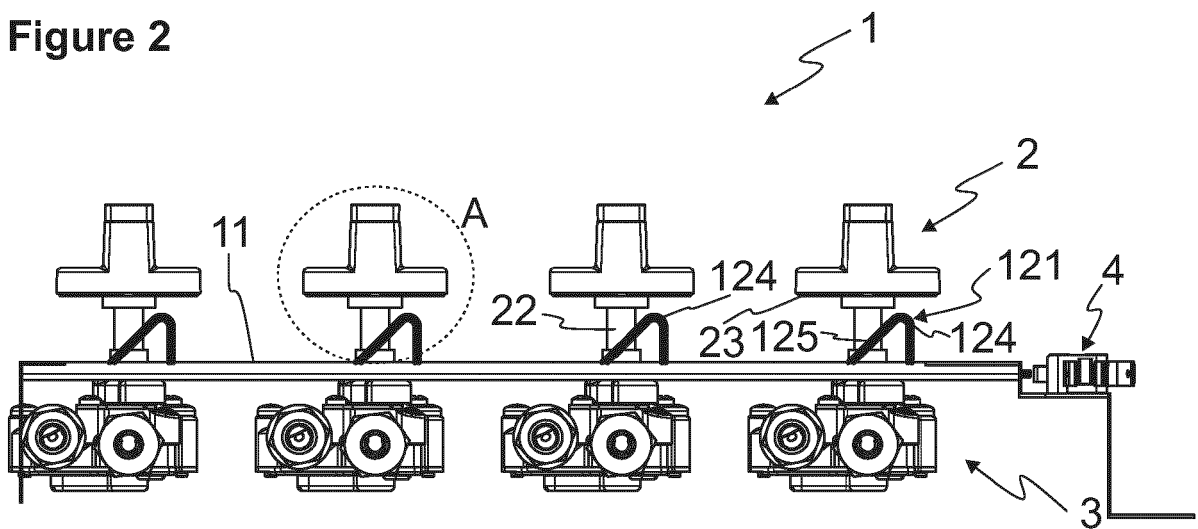


Figure 3

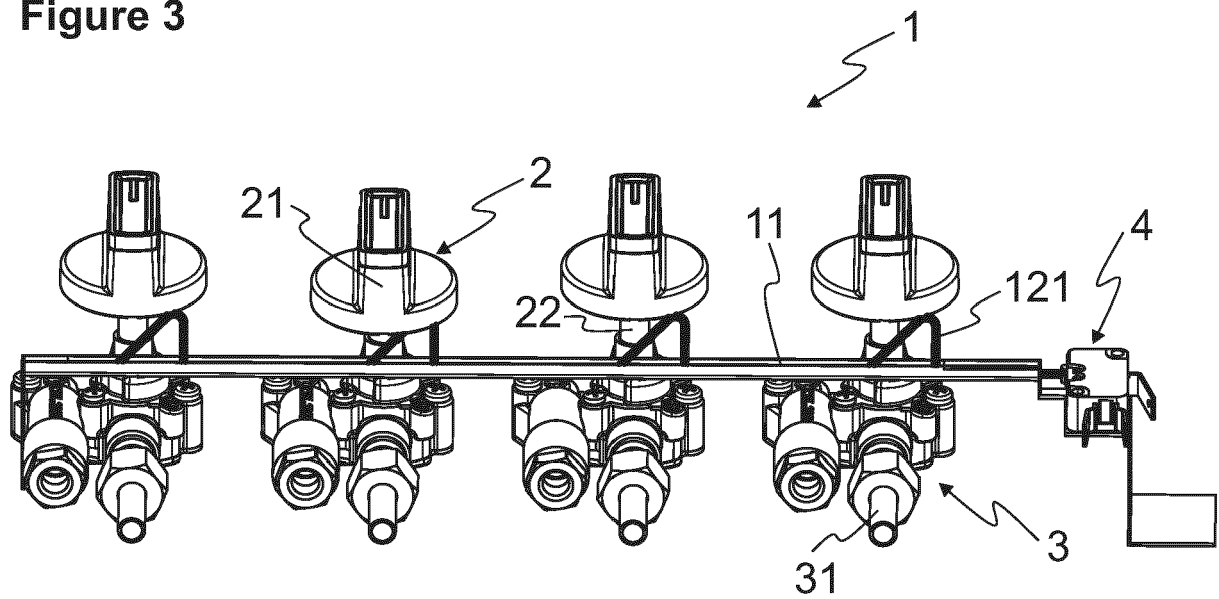


Figure 4

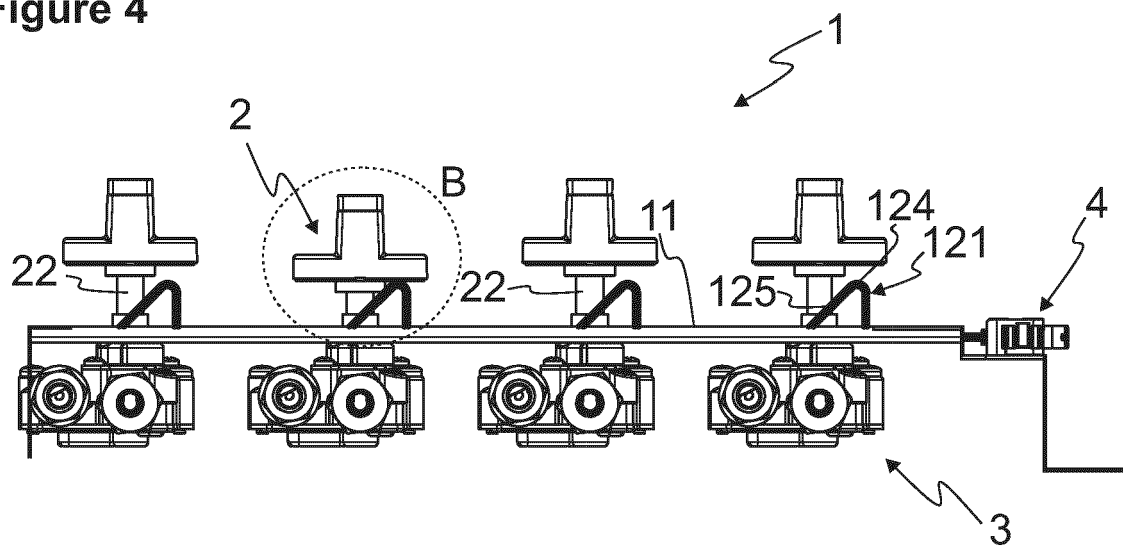


Figure 5

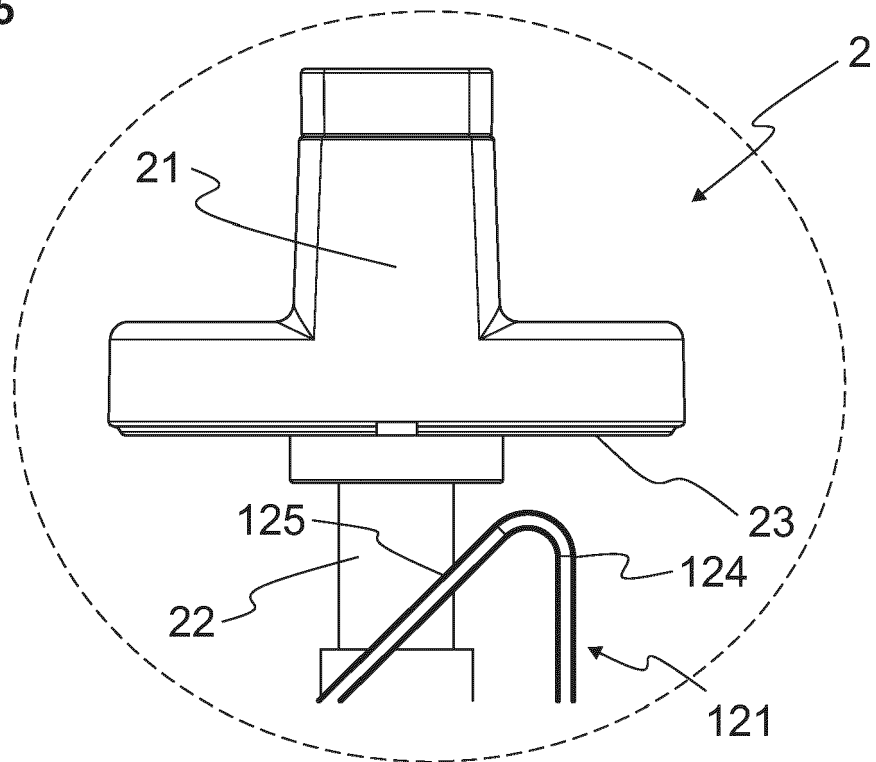


Figure 6

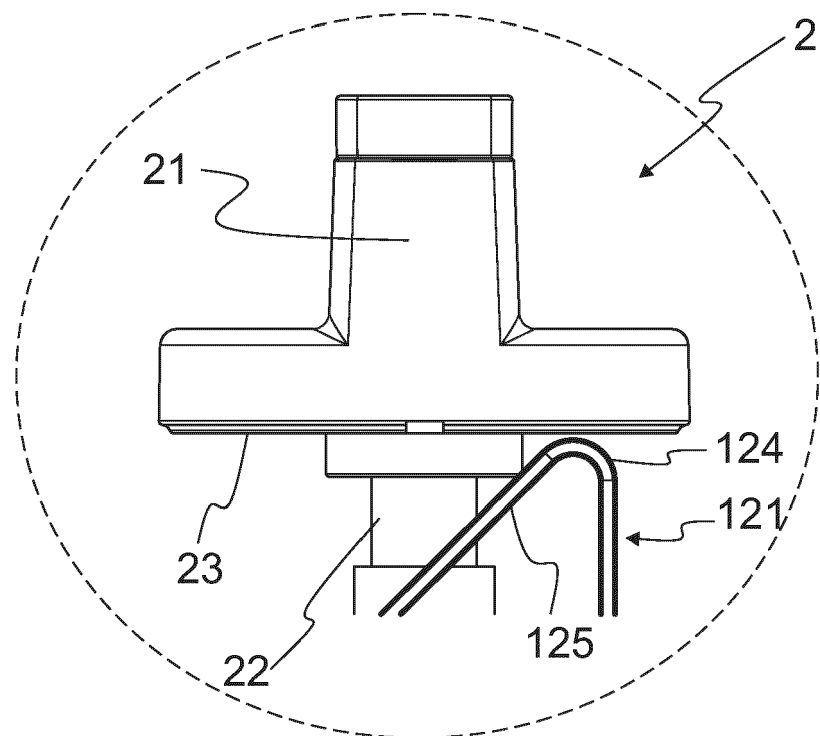


Figure 7

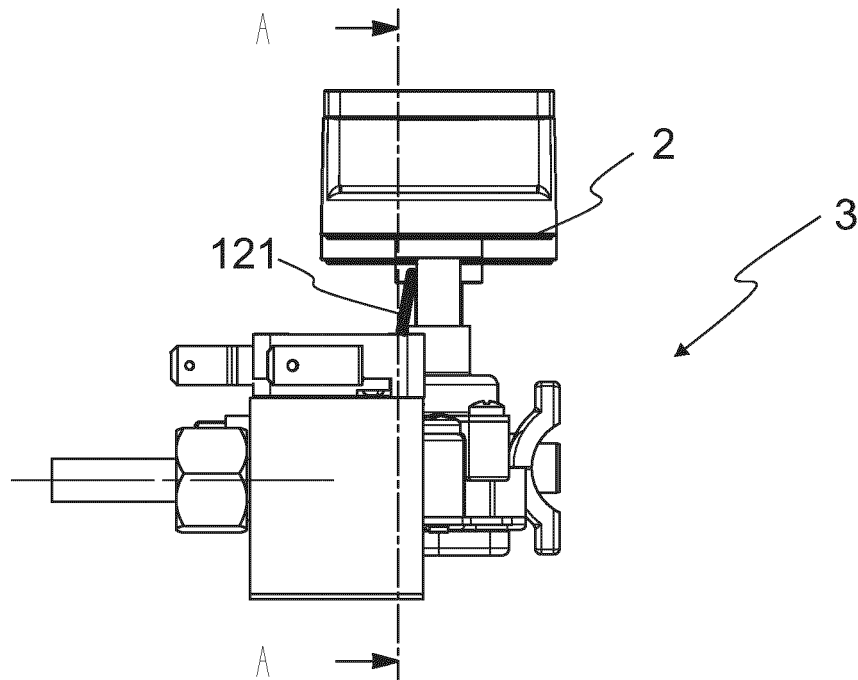


Figure 8

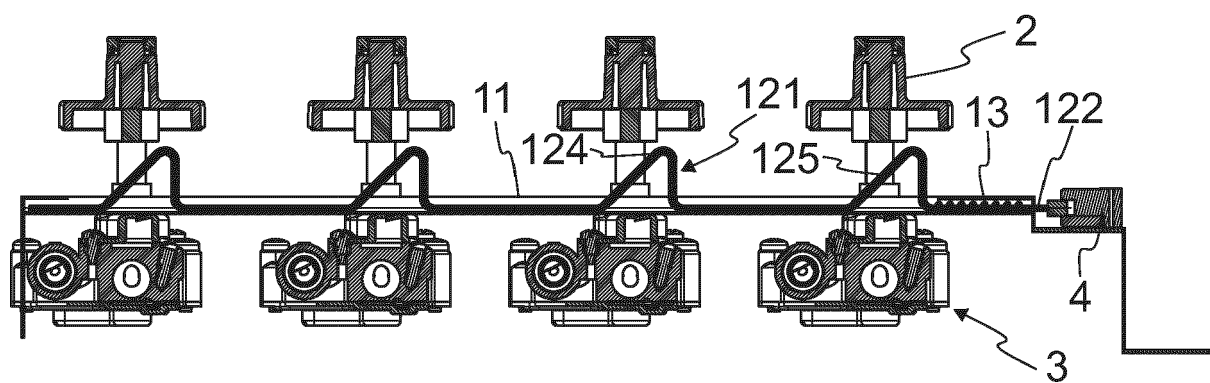


Figure 9

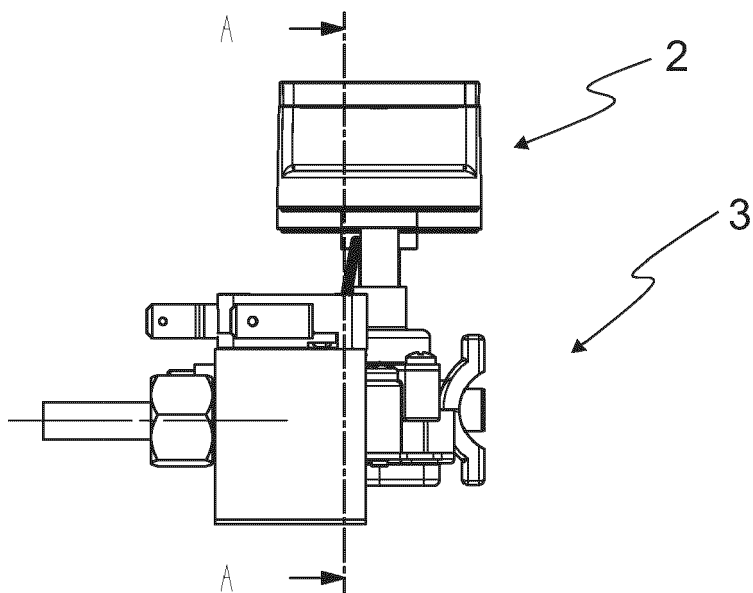


Figure 10

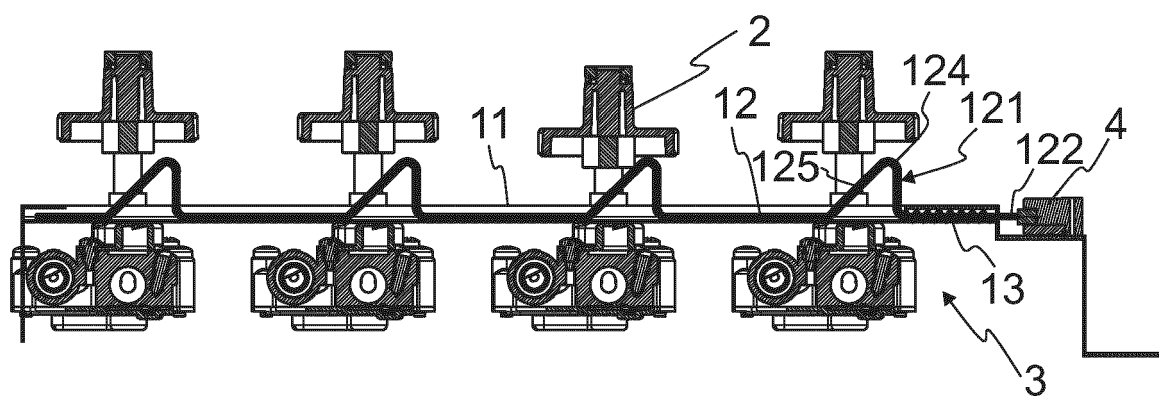


Figure 11

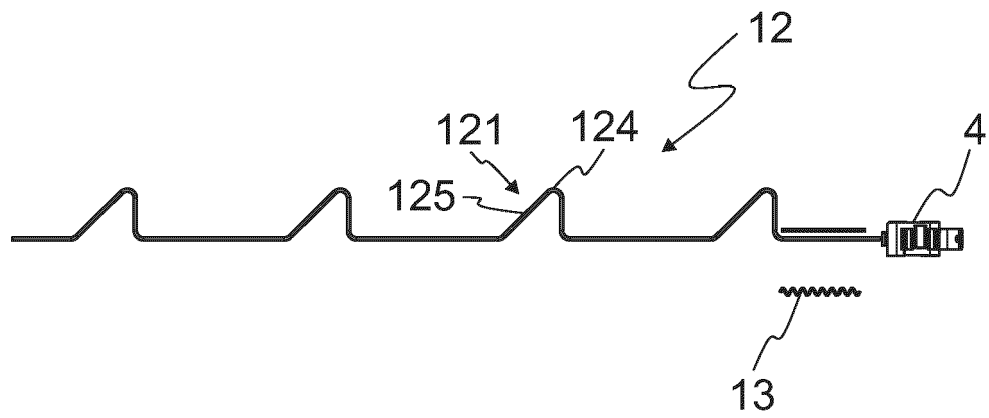


Figure 12

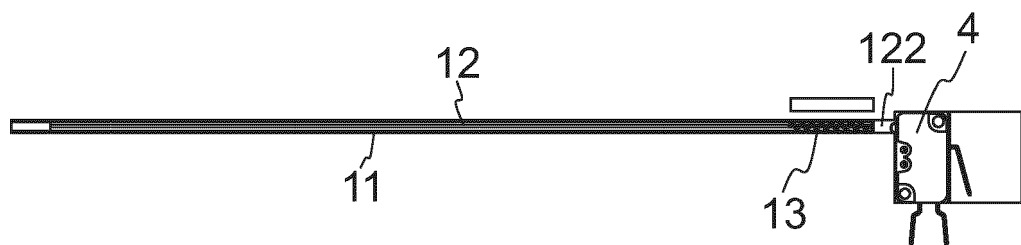


Figure 13

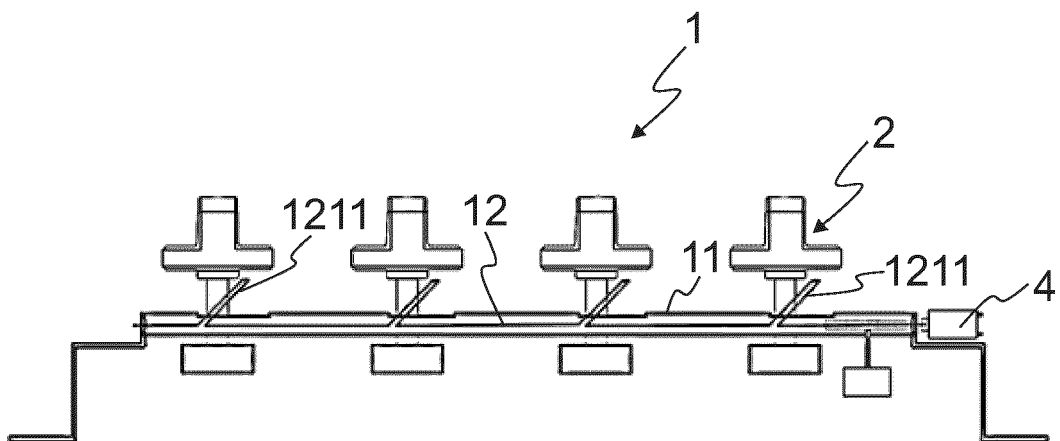


Figure 14

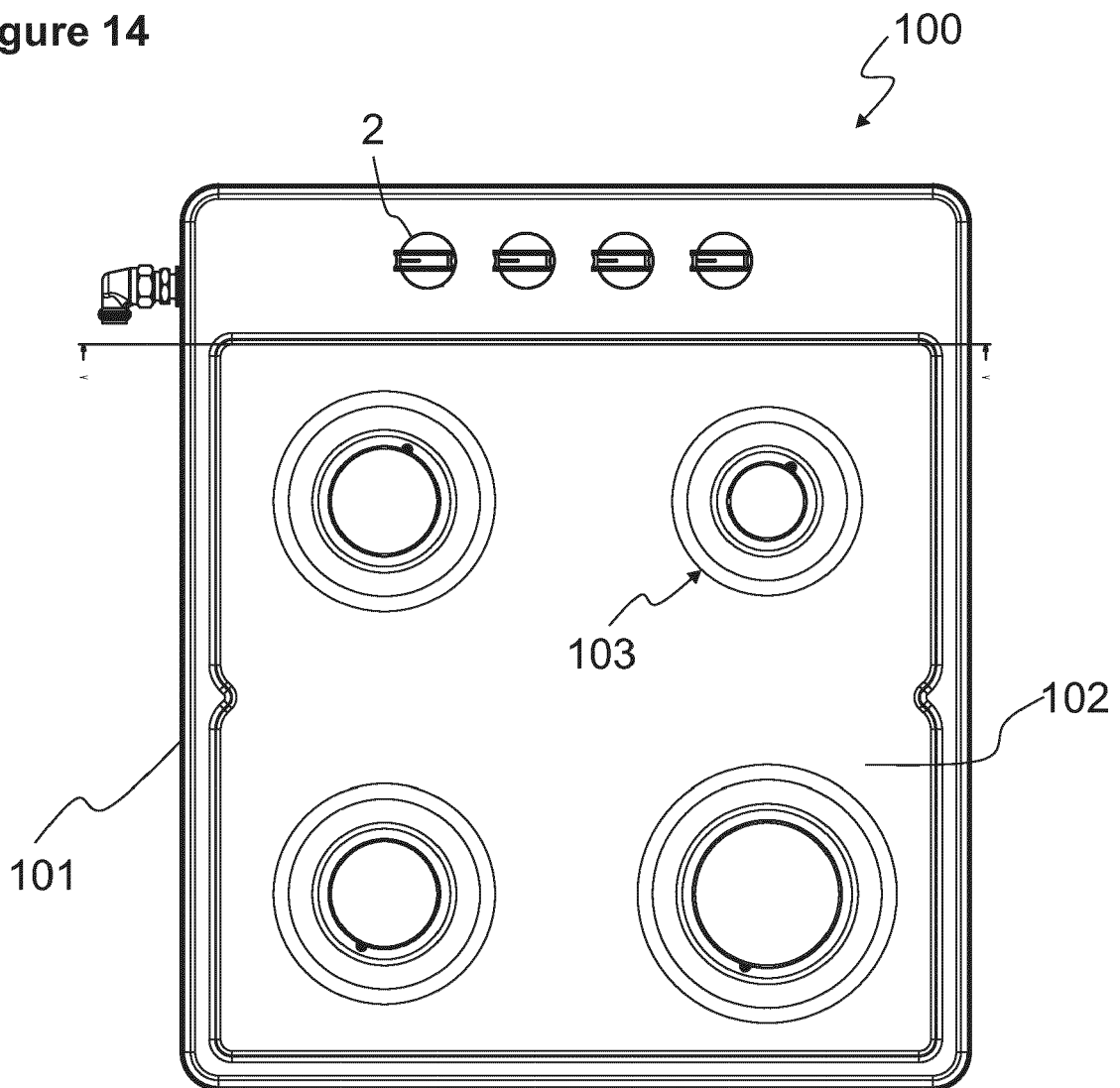
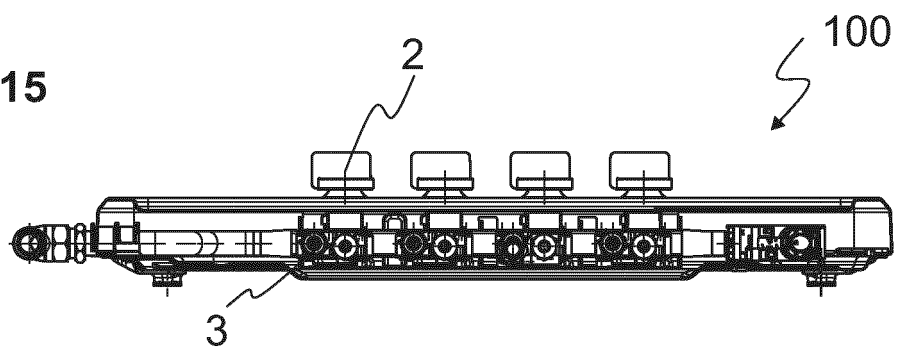


Figure 15





EUROPEAN SEARCH REPORT

Application Number

EP 23 21 3034

5

10

15

20

25

30

35

40

45

50

55

1

EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2019/137100 A1 (CHIRUMBOLO DINO [IT] ET AL) 9 May 2019 (2019-05-09) * paragraph [0039]; figures 1-4 *	1-11	INV. F24C3/10 F24C3/12
X	US 2022/090792 A1 (ALBERTI CARLO [IT]) 24 March 2022 (2022-03-24) * figures 1-3 *	1-11	
			TECHNICAL FIELDS SEARCHED (IPC)
			F24C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 22 April 2024	Examiner Meyers, Jerry
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 23 21 3034

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

22-04-2024

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2019137100 A1	09-05-2019	EP 3707436 A1	16-09-2020
		US 2019137100 A1	09-05-2019
		WO 2019094320 A1	16-05-2019
US 2022090792 A1	24-03-2022	EP 3974728 A1	30-03-2022
		US 2022090792 A1	24-03-2022

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- TR 201405531 [0005]