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(54) An ignition switch for gas taps

(57) The present invention relates to an ignition switch (30) which is connected to the rotary shaft (11) of a cooker gas tap (10). The subject matter invention relates to an ignition switch (30) comprising a first contact member (60); a second contact member (50) which contacts with the end part (61) of said first contact member (60); and a tab (44) which is provided on the lateral surface of said hub (40) for changing the position of the first contact member (60) and which triggers ignition by being adjacent to this flexible front guide part (633), said ignition switch (30) is **characterized** by comprising at least one second tab (43) which is provided on the lateral surface (42) of the hub (40) which advances on said first contact member (60), in order to trigger the contact of the first contact member (60) to the second contact (50) for the ignition of the gas in a second gas cooking member.

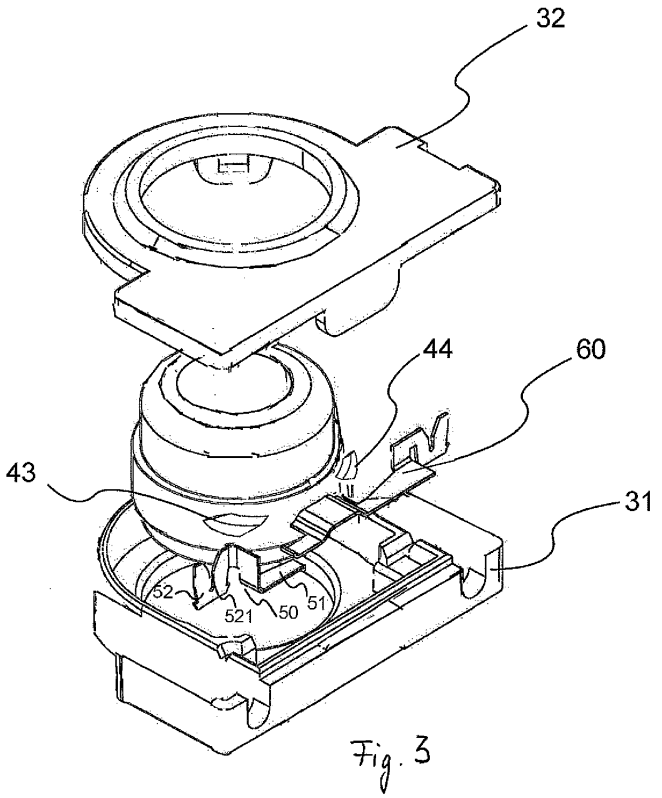

Fig. 3

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Description

TECHNICAL FIELD

[0001] The present invention relates to an ignition switch which is connected to the rotary shaft of a cooker gas tap. The present invention particularly relates to an ignition switch comprising a switch chamber; a hub which is rotatable inside said chamber and which is connected to the rotary shaft of a cooker gas tap; a contact with at least one arm part and with a contact end which contacts with the second contact when required.

KNOWN STATE OF THE ART

[0002] There are gas taps which are adapted to domestic type of gas cookers. Said gas taps comprise a safety valve placed to the tap body; a rotary shaft which is connected to the center of a control button in a shape coupling manner which is rotated by user; and an ignition switch which functions when the user rotates the rotary shaft in a specific direction in order to provide the ignition of the flame. When the rotary shaft is rotated in the opposite direction, there is no ignition.

[0003] Accordingly, in the patent US4019855, a gas tap is disclosed comprising a rotary shaft; a cam connected to the rotary shaft; and an ignition switch. The ignition switch comprises a fixed first terminal; and a second terminal which moves towards the first terminal for starting the ignition and which is driven by the cam. The cam comprises a radial first tab which is delimited by two parallel ramps and which is placed centrally; and a second tab which is positioned adjacent to the first tab. As a result of this, when the gas tap is rotated in the ignition direction, the second terminal is moved by means of the cam ramp until the second tab contacts with said terminal. When the tap is rotated in opposite direction to the ignition, the second terminal is moved by means of the cam ramp and during this movement, when it does not meet another tab which moves it to the first terminal, a contact which completes the electrical circuit is not formed.

[0004] In the embodiment disclosed in the patent EP2151836, an ignition switch assembly connectable to a rotary shaft of a gas tap, comprises fixed contact means, mobile contact means, and a cam coupled to the coupling element which is configured to move the mobile contact means relative to the fixed contact means. Accordingly, when the rotary shaft is rotated in a first direction from a first initial position, mobile contact means are moveable into electrically contact with the fixed contact means, whereas when the rotary shaft is rotated in a second direction opposite the first direction the lateral displacement of the cam is controlled to prevent electrical contact between the mobile and fixed contacts means.

[0005] In the utility model application TR200704647, a switch unit is disclosed which activates and deactivates the ignition transformer of gas stoves and gas ovens; which functions in a synchronized manner with the gas tap by engaging to the gas tap shaft; which activates the ignition transformer by providing electrical contact while the gas tap is being turned on in the gas applying direction; and which arrives at the first position while the gas tap is turned off in the gas cutting off direction.

[0006] As a result, in all of the abovementioned embodiments, the object is to provide ignition when the control button is rotated for applying gas and to prevent ignition when the control button is rotated in the opposite direction for cutting-off the gas.

BRIEF DESCRIPTION OF THE INVENTION

[0007] An object of the present invention is to provide a low cost ignition switch which provides the ignition of at least two different units, functioning using gas, when the cooker gas tap is rotated in the opening direction.

[0008] Another object of the present invention is to provide a low cost ignition switch which prevents the ignition of the units, functioning using gas, when the cooker gas tap is rotated in the turning off direction.

[0009] Another object of the present invention is to provide an ignition switch which triggers a gas cooking member, which is for instance a gas oven burner, when rotated from the position where no gas is applied, towards any position, and again which triggers another gas cooking member inside the cooker when continued to be rotated in this position and thereby which provides the ignition of a cooking member, so that the position where no gas is applied is the reference position.

[0010] In order to realize the abovementioned objects and the objects to be obtained from the detailed description below, the present invention relates to an ignition switch comprising a switch chamber; a hub which is positioned inside said switch chamber in a rotatable manner and which is engaged and connected to the rotary shaft of a gas tap which provides gas to the gas cooking member; a first contact member with an arm part which is provided on said hub and whose position is changeable during the opening and turning off of the gas tap, with a contact end part and with a flexible front guide part; a second contact member which contacts with the end part of said first contact member when in opening position of the gas tap; and a tab which is provided on the lateral surface of said hub for changing the position of the first contact member and which triggers ignition by contacting with this flexible front guide part, characterized by comprising at least one second tab which is provided on the lateral surface of the hub which advances on said first contact member, in order to trigger the contact of the first contact member to the second contact for the ignition of the gas in a second gas cooking member.

[0011] In a preferred embodiment of the present invention, in order to provide ignition to at least two gas cooking members, there is at least one rear flexible guide part to which a pushing force is applied by said tabs which contact at a second different point and which are formed between the contact end and said arm part on the first

contact member.

[0012] In a preferred embodiment of the present invention, there is at least one triggering member part which is preferably formed in the form of a cut-out and which provides the contact of the first contact member to the second contact member, which is provided on at least one tab by means of pushing; and there is a curved member part which adjusts the duration of pressing of this tab to the first contact member.

[0013] In a preferred embodiment of the present invention, there is at least one ramp-formed step inside said rear flexible guide part which is provided on the first contact member which provides ignition with the contacting of said two tabs.

[0014] In a preferred embodiment of the present invention, in order to prevent the contact of said first contact member to the second contact member, there is at least one rear elevating member part which is provided on the tab and which is preferably formed in cut-out form.

[0015] In a preferred embodiment of the present invention, said second tab comprises at least one triggering member part in the gas applying direction; at least one elevating member part in the gas turning off direction; and a curved member part which determines at least one ignition duration.

[0016] In a preferred embodiment of the present invention, between front and the rear two flexible guide parts of said first contact member with two flexible front and rear guide parts igniting two gas cooking members, the front and rear flexible guide parts form the lateral edges of a trapezoid; and there is at least one raised part which is embodied preferably in a flat form on the upper edge of said trapezoid.

[0017] In a preferred embodiment of the present invention, there is a first tab and a second tab which preferably have radial form. Particularly, the curved part of said tab is preferably radial.

[0018] In another preferred embodiment of the present invention, there is preferably a predetermined distance between the radial positions of said first and second tab which are provided on the lateral surface of the hub of said ignition switch. For instance, the predetermined distance between the two tabs is 90 degrees. In another application, the predetermined distance between the two tabs is 45 degrees.

[0019] In another preferred embodiment of the present invention, the orthogonal axial positions of said first and second tabs of said ignition switch are provided in a spaced manner.

[0020] In another preferred embodiment of the present invention, said ignition switch's said first and second tabs' orthogonal axial positions on the lateral surface are provided in the same radial direction.

[0021] In a preferred embodiment of the present invention, said first and second tab preferably have a cross section in the form of a parallelogram.

[0022] In another preferred embodiment of the present invention, when the hub is rotated from the gas applying position to the gas turning off position, there is a rear cut-out part which provides the elevating cut-out of the second tab to enter into the lower part of the first contact member. In another preferred embodiment of the present invention, when the hub is rotated from the gas applying position to the gas turning off position, there is a front cut-out part which provides the elevating cut-out of the first tab to enter into the lower part of the first contact member.

[0023] In another preferred embodiment of the present invention, the subject matter invention is a gas oven wherein the ignition switch is to be used.

BRIEF DESCRIPTION OF THE FIGURES

[0024] The oven realized for reaching the object of the subject matter invention is illustrated in the annexed figures, from these figures;

In Figure 1, a representative view where the subject matter invention is applied is given.

In Figure 2, the perspective view of the partially assembled form of the subject matter ignition switch is given.

In Figure 3, the perspective view of the dismantled form of the subject matter ignition switch is given.

In Figure 4a, the perspective view of the ignition switch hub used in the subject matter invention is given.

In Figure 4b, the perspective view of the first contact used in the subject matter invention is given.

THE DETAILED DESCRIPTION OF THE INVENTION

[0025] In this detailed explanation, the subject matter ignition switch (30) is explained with references to the annexed figures without forming any restrictive effect in order to make the subject more understandable. Accordingly, in the detailed description below, the subject matter invention is assumed to be applied to a cooker with a gas stove or with a gas grill.

[0026] In Figure 1, a gas tap (10) which controls the gas flow arriving a burner of a cooker (not illustrated in the figure) and which is connected to the gas collector pipe (20); and an ignition switch (30) which is connected to the rotary shaft (11) of said gas tap (10) are illustrated. Accordingly, when the user rotates a control button (not illustrated in the figure) fixed to the rotary shaft (11) in the opening direction, gas flow is realized to the related gas in proportion with the rotation amount, and at this instant, the ignition switch (30) provides electricity to the spark plug of the related burner for a certain duration, thus, flame is formed and thereby the gas in the burner is flamed.

[0027] With reference to Figure 2 and 3, the subject matter gas tap (10) essentially comprises a switch chamber (31); a hub (40) which is positioned inside said switch chamber (31) in a rotatable manner and which has a shaft opening (41) wherein the rotary shaft (11) is placed so as to preferably form shape coupling; a second contact (50) which is connected in a fixed manner to one side of the switch chamber (31); and a movable first contact (60) which can change position and which is connected to the opposite side of the chamber (31).

[0028] The first contact member (60), which is preferably made of flexible metal, does not contact with the second contact (50) normally; and with the rotation of the hub (40) in clockwise direction or in anti-clockwise direction, the contact between the second contact member (50) and the first contact member (60) is controlled as detailed below. The ignition switch (30) moreover has a cover (32) which closes said switch chamber (31).

[0029] With reference to Figure 4a, the hub (40) has a first and a second tab (43, 44), which are preferably in radial form and which are positioned on the lateral surface (42) of the hub (40) so as to have a space in between. Each radial formed tab (43, 44) has a lateral cross section which is preferably in the form of a parallelogram and which is formed by giving an inclination at the edges thereof.

[0030] In more details, in a preferred embodiment of the subject matter invention, the second radial formed tab (43) has a second triggering member part (431) which extends in an angled manner so as to face the base part (45) of the hub (40); preferably the second curved part (432) which extends parallel to the ground; and a rear elevating member part (433) which extends in an angled manner so as to face the upper part (46) of the hub (40). In a similar manner, the second radial tab (44) comprises a first triggering member part (441) which extends in an angled manner so as to face the base part (45) of the hub (40); a first curved part (442) which extends parallel to the ground; and a rear elevating member part (433) which extends in an angled manner so as to face the upper part (46) of the hub (40). On the other hand, the first and the second radial tabs (43, 44) are positioned on the lateral surface (42) of the hub (40) so that the first and the second triggering member parts (431, 441) preferably face each other.

[0031] With reference to Figure 3, the second contact member (50) is connected to the switch chamber (31) preferably from the left lower corner of the switch chamber (31) by means of the connection end (52) thereof; and the first contact member (60) is connected to the switch chamber (31) from the right lower corner of the switch chamber (31) by means of the connection end (52) thereof. After the connection is realized, the contact end (61) of the first contact member (60) is at the upper alignment of the contact end (51) of the second contact member (50). Respectively the electrical cables which are supplied from the ignition circuit and which arrive to the spark plug are connected to the cable housings (521, 621) formed at the connection end (52, 62) of each contact (50, 60). On the other hand, with reference to Figure 4b, the first contact (60) comprises an arm part (64) which extends at the continuation of the connection end (62); a flexible part (63) extending at the continuation of the arm part (64); and a contact end (61) extending at the continuation of the flexible part (63).

[0032] Said first contact member (60), which has the subject matter characteristics, comprises a rear flexible guide part (631) which extends upwardly in an angled manner at the continuation of the arm part (64); and a front flexible guide part (633) which extends as a flat surface in a parallel manner to the ground at the continuation of said rear flexible guide part (631), which forms the raised part (632) and which extends downwardly in an angled manner up to the contact end (61) at the continuation of said raised part (632).

[0033] Under the light of the structural details given above, the operation of the subject matter invention is as follows. When the user rotates the control button in the clockwise direction for igniting for instance the burner of an oven, the second triggering member part (431) of the second radial tab (44) contacts with the rear guide flexible part (631) of the first contact member (60), thus, the first contact member (60) moves downwardly and it contacts with the second contact (50). As a result, the circuit is completed and the spark plug is ignited. Afterwards, the user continues to rotate the control button in the same direction and, accordingly, the first contact member (60) remains in contact with the second contact member (50) until preferably the flat first curved part (42) ends.

[0034] In an exemplary application of the subject matter invention, the first contact member (60) has a cut-out rear groove part (611) which is provided at the beginning of the rear flexible guide part (631) at the arm part (64) and which provides the second tab's (43) elevating member part (433) to enter into the lower side of the first contact member (60) when the hub (40) is rotated from the gas applying position to the gas turning off position. At the part where this groove part (611) exists, the width of the arm part (64) is narrowed.

[0035] Moreover, the first contact (60) has a cut-out front groove part (612) which is provided at the end of the front flexible guide part (633) and which provides the first tab's (44) elevating member part (443) to enter into the bottom part of the first contact member (60) when the hub (40) is rotated from the gas applying position to the gas turning off position. Thus, at the continuation of the flexible guide part (633), the width of the first contact member (60) is narrowed.

[0036] Meanwhile, a burner is ignited which is for instance at the upper part of the oven. When the contact between the second curved part (432) and the first contact member (60) is broken, since the first contact member (60) is released from pressure, it bends upwardly and thereby it again returns to the prior position thereof, thus the circuit becomes open circuit. As can be understood from this, the length of the first curved part (442) deter-

mines the electricity application duration to the spark plug.

[0037] For the turning off of the burner, when the user rotates the control button in counterclockwise direction, the first triggering member part (443) reaches the front groove part (612) adjacent to the contact end (61) of the first contact member (60), and from there, because of the form of the curved part (442), it enters under the first contact member (60) by means of a first triggering member part (443) whose surface faces the upper side. Thus, during rotation, a useless ignition process is prevented.

[0038] In a similar manner, for instance, when the user rotates the control button for igniting a lower grill of the oven, a first triggering member part (441) of the second radial tab (43) facing downwardly contacts with the front flexible guide part (633) of the first contact member (60), thus, the first contact member (60) bends downwardly and it contacts with the second contact member (50). As a result of this, the circuit is completed and the spark plug is ignited.

[0039] Afterwards, the user continues to rotate the control button in the same direction, accordingly, the first contact member (60) and the second contact member (50) remain in contact until the contact of the first contact member (60) with the second curved part (432) ends.

[0040] The contact of the second curved part (432) with the first contact member (60) is broken, and thereby the first contact returns to the prior position and thus the circuit becomes open circuit. When the user rotates the control button for turning off the grill, the first triggering member part (443) reaches the rear groove part (611) of the first contact member (60), and from there, it enters under the lower side of the first contact member (60). Thus, again during this rotation, a useless ignition is prevented again.

REFERENCE NUMBERS

[0041]

10	Gas tap
11	Rotary shaft
20	Gas collector pipe
30	Ignition switch
31	Switch chamber
32	Cover
40	Hub
41	Shaft opening
42	Lateral surface
43	Second tab
431	Second triggering member part
432	Second curved part
433	Second elevating member part
44	First tab
441	First triggering member part
442	First curved part
443	First elevating member part
45	Base part
46	Upper part
50	Second contact member
51	Contact end
52	Connection end
521	Cable housing
60	First contact member
61	Contact end
611	Rear groove part
612	Front groove part
62	Connection end
621	Cable housing
63	Flexible part
631	Rear flexible guide part
632	Raised part
633	Front flexible guide part
64	Arm part

Claims

1. An ignition switch (30) comprising a switch chamber (31); a hub (40) which is positioned inside said switch chamber (31) in a rotatable manner and which is engaged and connected to the rotary shaft (11) of a gas tap (10) which provides gas to the gas cooking

member; a first contact member (60) with an arm part (64) which is provided on said hub (40) and whose position is changeable during the opening and turning off of the gas tap, and with a contact end part (61) and with a flexible front guide part (633); a second contact member (50) which contacts with the end part (61) of said first contact member (60) when in opening direction of the gas tap (10); and a tab (44) which is provided on the lateral surface (42) of said hub (40) for changing the position of the first contact member (60) and which triggers ignition by contacting with this flexible front guide part (633), said ignition switch (30) is **characterized by** comprising at least one second tab (43) which is provided on the lateral surface (42) of the hub (40) which advances on said first contact member (60), in order to trigger the contact of the first contact member (60) to the second contact (50) for the ignition of the gas in a second gas cooking member.

2. An ignition switch (30) according to claim 1, wherein, in order to provide ignition to at least two gas cooking members, there is at least one rear flexible guide part (631) to which a pushing force is applied by said tabs (43, 44) which contact at a second different point and which are formed between the contact end (61) and said arm part (64) on the first contact member (60).

3. An ignition switch (30) according to claim 1, wherein a first tab (44) and a second tab (43) are provided which preferably have radial form.

4. An ignition switch (30) according to any one of the preceding claims, wherein at least one triggering member part (431, 441) is provided which is preferably formed in the form of a cut-out and which provides the contact of the first contact member to the second contact member, which is provided on at least one tab (43, 44) by means of pushing; and a curved member part (432, 442) is provided which adjusts the duration of pressing of this tab to the first contact member.

5. An ignition switch (30) according to claim 2, wherein at least one ramp-formed step is provided inside said rear flexible guide part (631) which is provided on the first contact member (60) which provides ignition with the contacting of said two tabs (43).

6. An ignition switch (30) according to claim 1 and 3, wherein, in order to prevent the contact of said first contact member (60) to the second contact (50), there is at least one rear elevating member part (433, 443) which is provided on the tab (43, 44) and which is preferably formed in cut-out form.

7. An ignition switch (30) according to claim 1, 3 and 5, wherein said second tab (43) comprises at least one triggering member part (431) in the gas applying direction; at least one elevating member part (432) in the gas turning off direction; and a curved member part (433) which determines at least one ignition duration.

8. An ignition switch (30) according to claim 2 and 4, wherein, between front and rear two flexible guide parts (631, 633) of said first contact member (60) with two flexible front and rear guide parts (631, 633) igniting two gas cooking members, the front and rear flexible guide parts (631, 633) form the lateral edges of a trapezoid; and at least one raised part (632) is provided which is embodied preferably in a flat form on the upper edge of said trapezoid.

9. An ignition switch (30) according to any one of the preceding claims, wherein preferably a predetermined distance is provided between the radial positions of said first and second tabs (43, 44) which are provided on the lateral surface of the hub.

10. An ignition switch (30) according to any one of the preceding claims, wherein the orthogonal axial positions of said first and second tabs (43, 44) of said ignition switch are provided in a spaced manner.

11. An ignition switch (30) according to any one of the preceding claims, wherein said first and second tabs' (43, 44) orthogonal axial positions on the lateral surface (42) are provided in the same radial direction.

12. An ignition switch (30) according to any one of the preceding claims, wherein said first and second tabs (43, 44) preferably have a cross section in the form of a parallelogram.

13. An ignition switch (30) according to any one of the preceding claims, wherein, the first contact member (60) has a cut-out rear groove part (611) which is provided at the beginning of the rear flexible guide part (631) at the arm part (64) and which provides the second tab's (43) elevating member part (433) to enter into the lower side of the first contact member (60) when the hub (40) is rotated from the gas applying position to the gas turning off position.

14. An ignition switch (30) according to any one of the preceding claims, wherein, the first contact (60) has a cut-out front groove part (612) which is provided at the end of the front flexible guide part (633) and which provides the first tab's (44) elevating member part (443) to enter into the bottom part of the first contact member (60) when the hub (40) is rotated from the gas applying position to the gas turning off position.

15. An ignition switch (30) according to any one of the preceding claims, wherein the subject matter invention is a gas oven wherein the ignition switch is to be used.

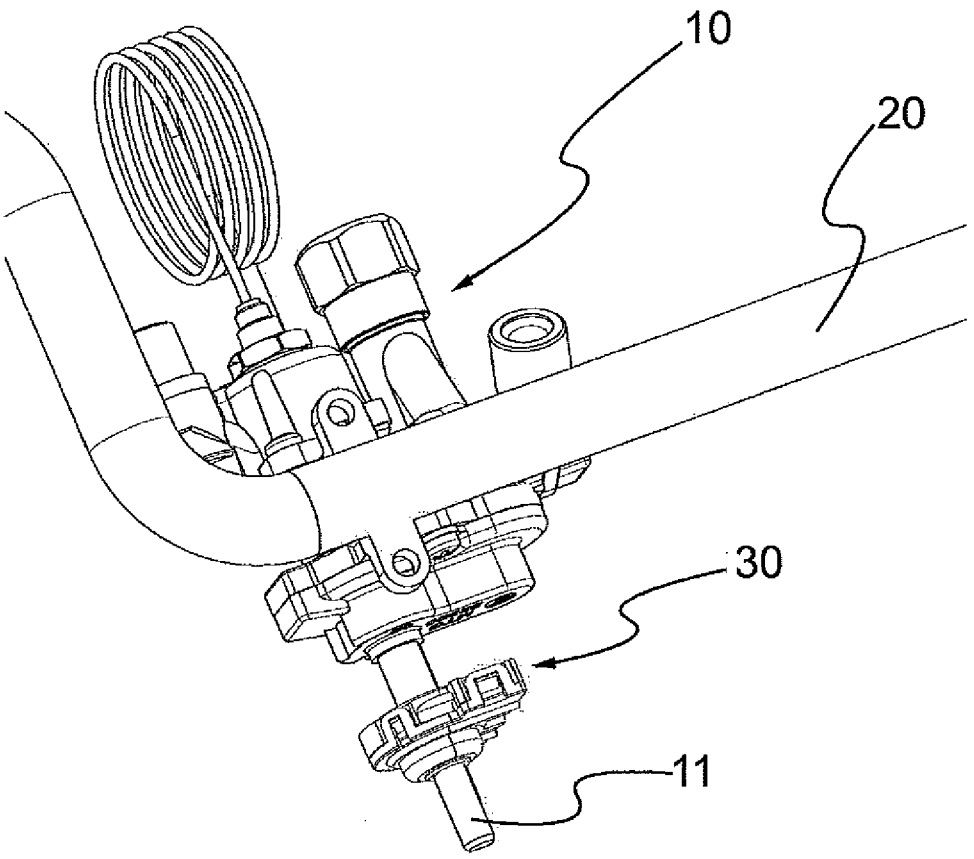

Fig. 1

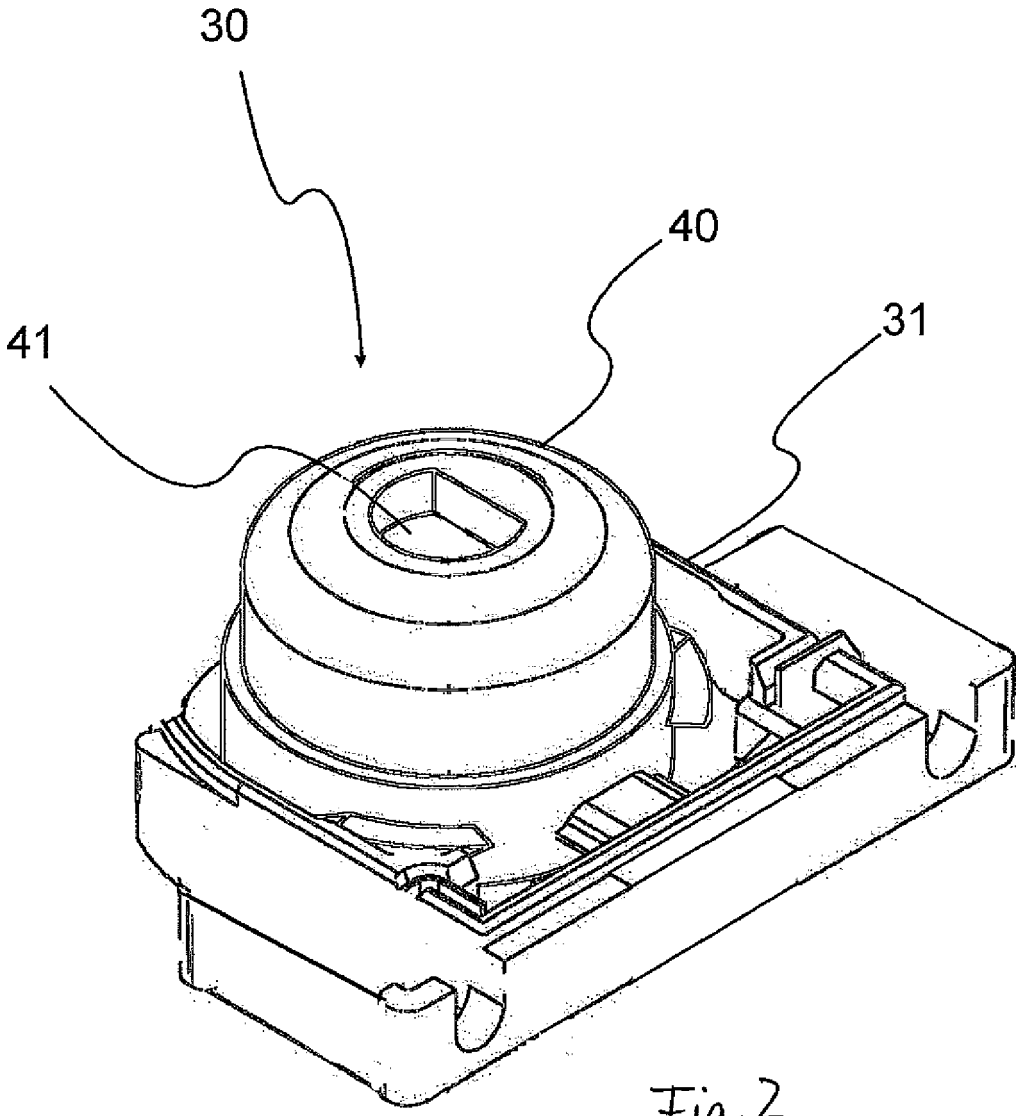

Fig. 2

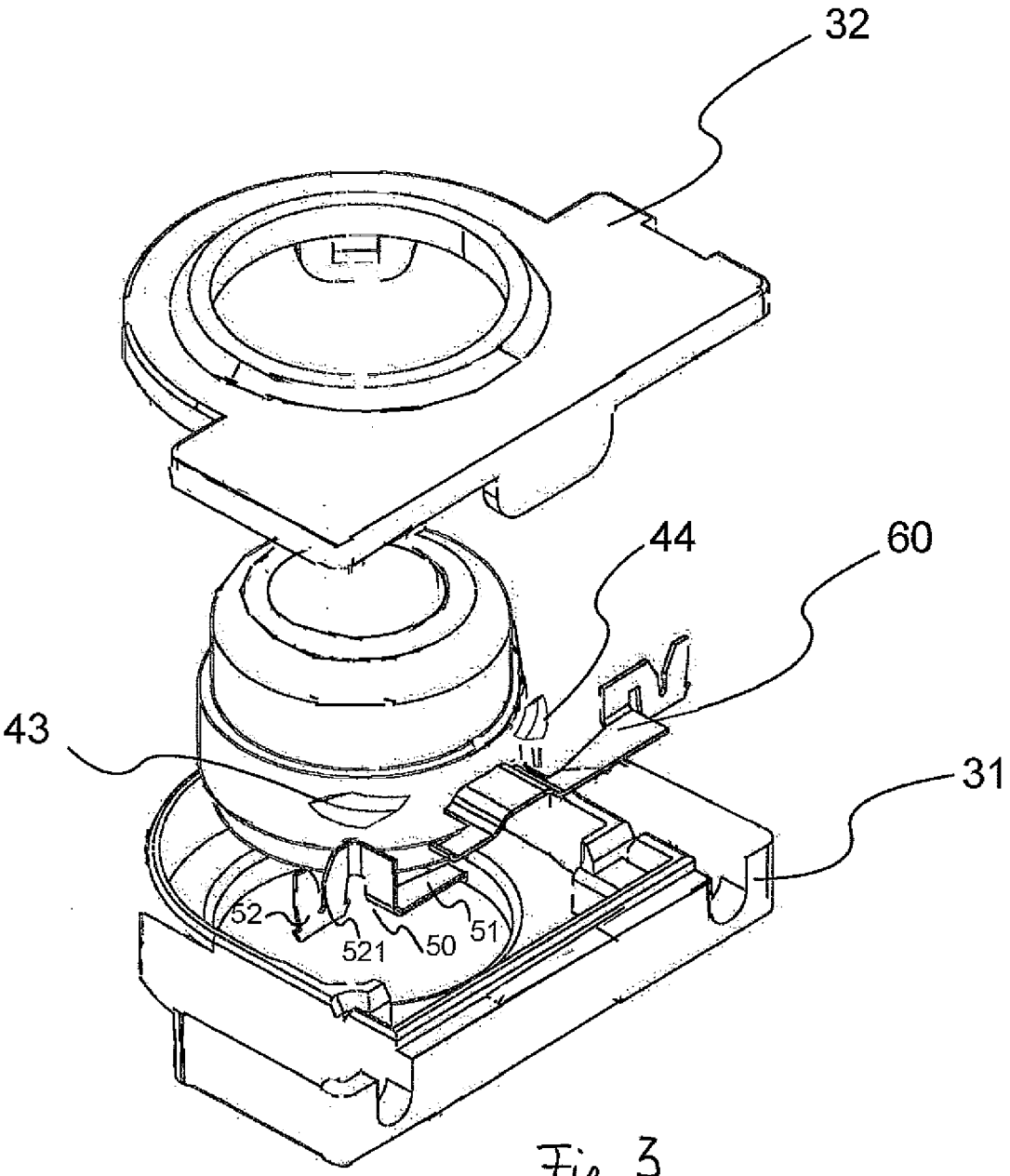

Fig. 3

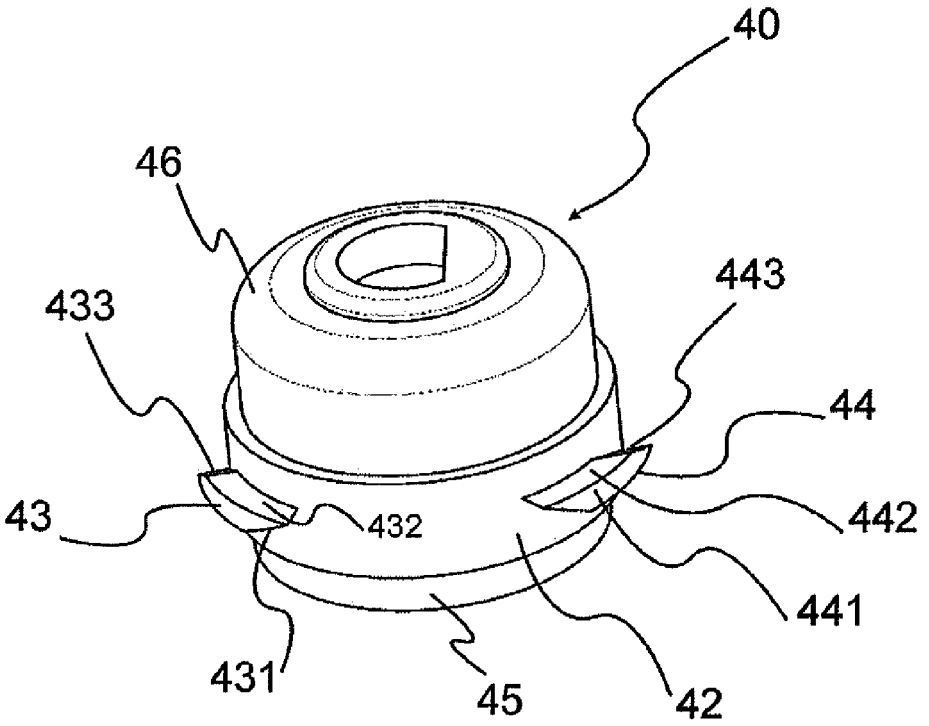
40
46
433
443
44
43
432
442
441
431
45
42

Fig. 4a

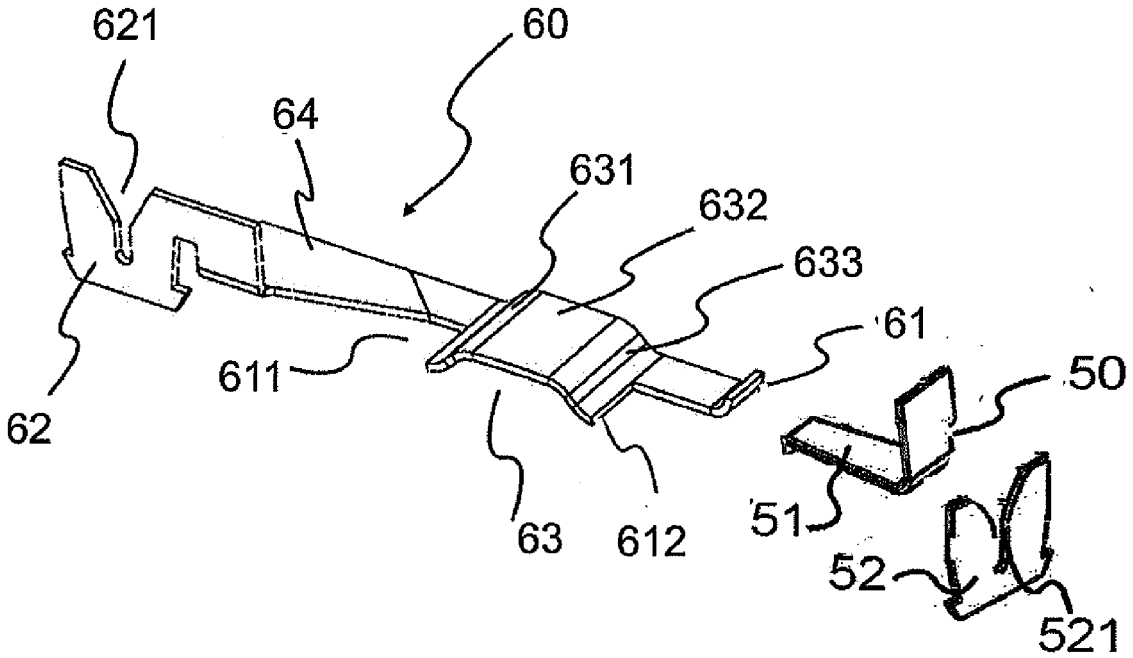
621
60
64
631
632
633
61
50
611
62
51
63
612
52
521

Fig. 4b

REFERENCES CITED IN THE DESCRIPTION

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- EP 2151836 A **[0004]**
- TR 200704647 **[0005]**