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(54) A cooker with a movable gas tap shaft

(57) The present invention relates to a cooker (1) with a gas tap comprising a flow control member (30) which is rotated by means of a shaft (10) which is movable along an axial advancing direction (D1) and where the shaft (10) partially enters from an internal end thereof (12) into a housing (21) of the flow control member (30); a rod (20) which is placed inside the flow control member (30), which is configured so as to be able to rest onto an internal end (12) from a first end thereof (23) and which carries a flow control piece (28) from the opposite second end (25).

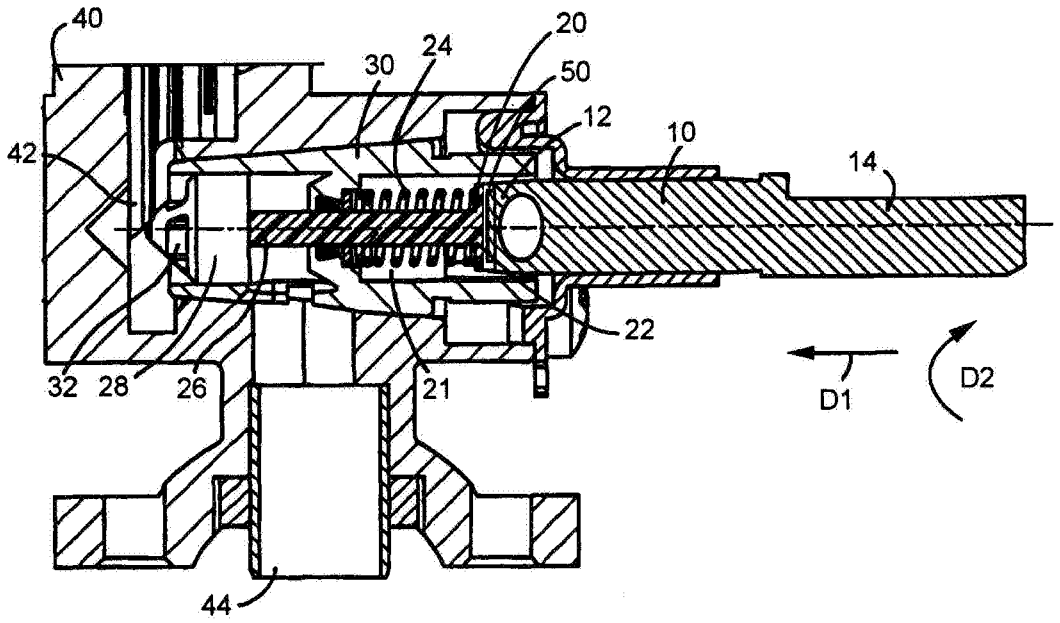

FIG. 2

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Description

TECHNICAL FIELD

[0001] The present invention relates to cookers with a shaft which can move axially, in order to start ignition process in the gas tap of a collector providing adjustable gas flow to the burner.

KNOWN STATE OF THE ART

[0002] In order to adjust the gas flow flowing towards a burner of cookers, there are gas taps of collectors in connection with burner. The gas tap has a member which defines an internal chamber from a gas inlet towards a gas outlet; and a flow control member. The flow control member has a rotating member which is connected to a shaft and which can be rotated between the open and closed positions manually by the user.

[0003] In the patent publication EP1672279A1, a gas tap is disclosed. A rod which is adapted in an axially sliding manner so as to be aligned with the shaft inside the gas tap forms the flow control member inside a housing. The second internal end of the shaft presses on one end of the rod. A second end of the rod contacts with a first conic surface facing an inclined plane. The shaft partially enters into the flow control member and it has a second internal end which is connected to the first end of the rod and it has a first external end through which a control knob passes. There is a spring between the flow control member and the first end of the rod, and the spring pushes the rod and the shaft to an inactive axial position and towards the first external end of the shaft. It is disclosed that the shaft and the rod can be integrated or they can be as separate pieces and made of different materials.

BRIEF DESCRIPTION OF THE INVENTION

[0004] The object of the invention is to preserve the operation sensitivity of cooker gas taps with a shaft and rod comprising separate pieces.

[0005] Another object of the subject matter invention is to decrease the costs of axially movable pieces of the cooker gas taps.

[0006] In order to realize the abovementioned object, the present invention is a cooker with a gas tap comprising a flow control member which is rotated by means of a shaft which is movable along an axial advancing direction (D1) and where the shaft partially enters from an internal end thereof into a housing of the flow control member; and a rod which is placed inside the flow control member, which is configured so as to be able to rest onto an internal end from a first end thereof and which carries a plug which opens and closes a channel from the opposite second end thereof. In a preferred embodiment of the present invention, there is at least one plate which is provided between said shaft and rod and whose abrasion resistance is essentially greater than the abrasion resistance of the shaft. In a probable embodiment, the abrasion resistance of the plate can also be greater than the abrasion resistance of the rod. The plate protects the shaft against the abrasions resulting from the contact thereof with the rod during the rotation and advancing of the shaft.

[0007] The plate is in the form of a cover with an outer surface extending to the periphery of the shaft and which is fixed to the internal end of the shaft. The cover can be easily assembled onto the shaft.

[0008] In a preferred embodiment of the present invention, there is a pivot which is formed at the internal end and which completes the shaft form with the coupling of the plate thereon. With the fixation of the cover to the pivot, the shaft gets the view of a one piece cylinder. Thus, it can be easily changed by the old type of shafts.

[0009] In a preferred embodiment of the present invention, the plate is fixed to the shaft by snap-fit method. This situation provides the engagement of the plate to the shaft manually, and decreases the assembly cost.

[0010] In a preferred embodiment of the present invention, the plate has a planar abrasion surface which covers a front surface of the internal end. The planar surface covers the front part and protects it against abrasion.

[0011] In a preferred embodiment of the present invention, there is at least one spring which is adapted to the rod so as to apply pressure towards the shaft. The spring provides the rod to push the shaft and after the user pushes the shaft, it helps the return of the shaft to the initial position thereof.

[0012] In a preferred embodiment of the present invention, the plate has a U like cross section. This structure helps the plate to be easily assembled to the shaft end.

[0013] In a preferred embodiment of the present invention, the shaft is essentially made of plastic material. In this case, the shaft cost is reduced and by means of the plate at the end part thereof, the shaft has the desired strength.

[0014] In a preferred embodiment of the present invention, the shaft and the rod are concentric. This situation makes the force transfer of the shaft towards the rod more efficient.

BRIEF DESCRIPTION OF THE FIGURES

[0015] The additional characteristics and advantages of the subject matter invention will be obtained from the exemplary embodiments giving reference to the annexed figures.

In Figure 1, the perspective view of a cooker comprising a representative application of the subject matter axially movable shaft structure is given.

In Figure 2, the cross sectional view of the gas tap comprising a representative application of the subject matter axially movable shaft structure is given.

In Figure 3, the perspective shaft dismantled view of the embodiment illustrated in Figure 1 is given.

In Figure 4, the lateral view of a representative em-

bodiment of the subject matter shaft is given.
In Figure 5, the frontal view of a representative embodiment of the subject matter shaft is given.
In Figure 6, the rear view of a representative embodiment of the subject matter shaft is given.
In Figure 7, the top view of a representative embodiment of the subject matter cover is given.
In Figure 8, the A-A cross section of the cover illustrated in Figure 6 is given.

REFERENCE NUMBERS

[0016]

1	Cooker
10	Shaft
12	Internal end
13	Pivot
14	External end
15	Front surface
20	Rod
21	Housing
22	Front surface
23	First end
24	Spring
25	Second end
26	Rear surface
28	Plug
30	Flow control member
32	Tab
40	Body
42	Channel
44	Inlet
50	Plate, Cover
52	Abrasion surface
54	Inner surface
56	Outer Surface
D1	Advancing direction
D2	Rotation direction

THE DETAILED DESCRIPTION OF THE INVENTION

[0017] In Figure 1, the lateral cross section of the body (40) of a gas tap belonging to a gas cooker (1) in stove or oven form is illustrated. A flow control member (30) which forms a housing (11) with the hollow form thereof is placed into a bed inside the body (40). A shaft (10) which has a form so as to advance axially and which is in horizontal position inside the housing (21) extends so that one internal end thereof (12) stays inside the housing (21). The shaft (10) is connected to a plug (28) by means of a rod (20), where said plug (28) is in a channel (42) providing gas flow inside the body (40). By means of the position thereof inside the channel (42), the plug (28) determines the flow of the gas taken to the body (40) from an inlet (44). The rod (20) and the shaft's (10) internal end (12) inside the flow control member (30) are aligned concentrically in the housing (21) inside the flow control member (30). The rod (20) has a cylindrical form whose end has tab. A spring (24) wraps the outer diameter of the rod longitudinally and from one end thereof it is fixed to a tab in the housing (21) and from the other end thereof, it is fixed to a tab at a first end (23) of the rod (20) facing the shaft (10). At a second end (25) of the rod (20) at the opposite side, a plug (28) is fixed from the rear surface (26) thereof.

[0018] The gas control knob (not illustrated in the figure) is fixed to an external end (14) of the shaft (10). The front surface (15) of the internal end (12) comprises a pivot (13) obtained by the narrowing of the shaft (10) diameter. A plate (50) in blind flange form seats to the pivot (13) and completes the shaft (10) to a cylindrical structure. The plate (50) is fixed to the pivot (13) in a snap-fit manner. The surface of the plate (50) is in contact with the first end (23) of the rod (20).

[0019] In Figure 2, the gas tap is illustrated in a perspective manner, where the shaft (10) is in dismantled form. In the internal end (12) of the shaft (10) entering into the tap body (40), a circular plate (50) with an outer surface (56) completing the pivot (13) is seated. In Figure 3, Figure 4 and Figure 5, the shaft (10) is illustrated from plurality of perspectives. The diameter of the pivot (13) is narrower than the outer diameter of the shaft (10). In Figure 6 and Figure 7, the plate (50) is fixed to the shaft (10) and the cross section thereof is illustrated. An inner surface (54) is illustrated contacting with a planar abrasion surface (52) which closes the plate's (50) front surface (15) and contacting with the front surface (15) and outer surface (56) obtained by curling this along the edges thereof in an orthogonal manner. The pivot's (13) outer diameter and the inner surface (54) diameter are essentially the same. The sum of outer surface (56) thickness

and inner surface (54) diameter is essentially equal to the internal end's (12) outer diameter.

[0020] The user pushes the button (not illustrated in the figure) manually in the advancing direction (D1) in order to activate gas flow and thus, he/she pushes the shaft (10) and thereby pushes the rod (20). Meanwhile, because of the opposite force of the spring (24), pressure is applied to the plate (50) both by the front surface (22) and by the first end (23). Afterwards, the shaft (10) is rotated in the rotation direction (D1) and the position of the plug (28) is changed and the channel (42) is opened and the gas coming from the inlet (44) passes through the body (40).

[0021] In the present embodiment, the shaft (10) is made of plastic. The plate (50) and the rod (20) are metal (for instance steel). Therefore, plate (50) protects shaft (10) on which it is secured, against pressure between shaft (10) and rod (20) applied by (D1) movement; and against torsion provided by rotational movement (D2). In alternative embodiments, the connection between the plate (50) and the shaft (10) can be provided by means of an adhesive material or by using connection members (for instance, pin) or by forming thread between the outer surface (56) and the pivot (13).

Claims

1. A cooker with a gas tap comprising a flow control member (30) which is rotated by means of a shaft (10) which is movable along an axial advancing direction (D1) and where the shaft (10) partially enters from an internal end thereof (12) into a housing (21) of the flow control member (30); and a rod (20) which is placed inside the flow control member (30), which is configured so as to be able to rest onto an internal end (12) from a first end thereof (23) and which carries a plug (28) which opens and closes a channel (42) from the opposite second end thereof (25), **characterized by** comprising at least one plate (50) which is provided between said shaft (10) and rod (20) and whose abrasion resistance is essentially greater than the abrasion resistance of the shaft (10).

2. A cooker according to the claim 1, wherein the plate (50) is in the form of a cover with an outer surface (56) extending to the periphery of the shaft (10) and which is fixed to the internal end (12) of the shaft (10).

3. A cooker according to the claim 2, wherein a pivot (13) is provided which is formed at the internal end (12) and which completes the shaft (10) form with the coupling of the plate (50) thereon.

4. A cooker according to the claim 2 or 3, wherein the plate (50) is fixed to the shaft (10) by snap-fit.

5. A cooker according to any one of the preceding claims, wherein the plate (50) has a planar abrasion surface (52) which covers a front surface (15) of the internal end (12).

6. A cooker according to any one of the preceding claims, wherein at least one spring (24) is provided which is adapted to the rod (20) so as to apply pressure towards the shaft (10).

7. A cooker according to any one of the preceding claims, wherein the plate (50) has a U like cross section structure.

8. A cooker according to any one of the preceding claims, wherein the shaft (10) is essentially made of plastic material.

9. A cooker according to any one of the preceding claims, wherein the shaft (10) and the rod (20) are concentric.

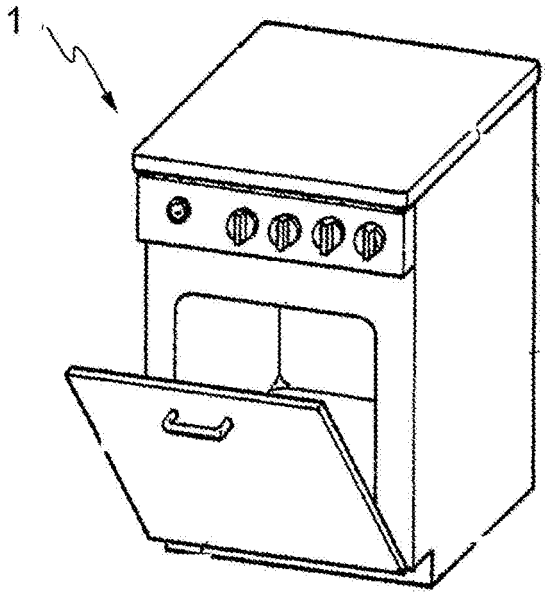

FIG. 1

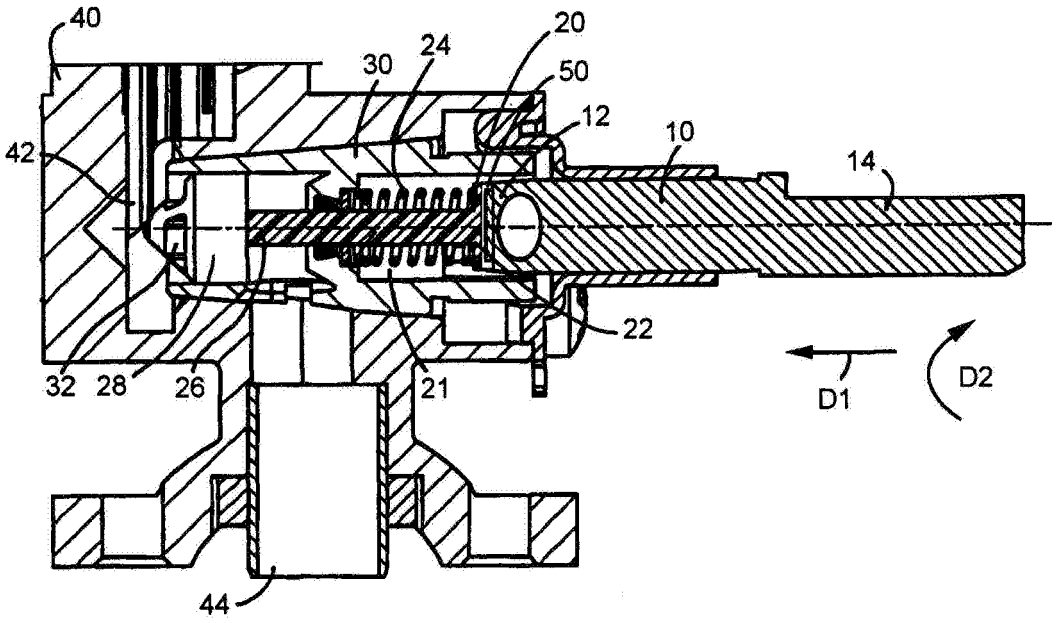

FIG. 2

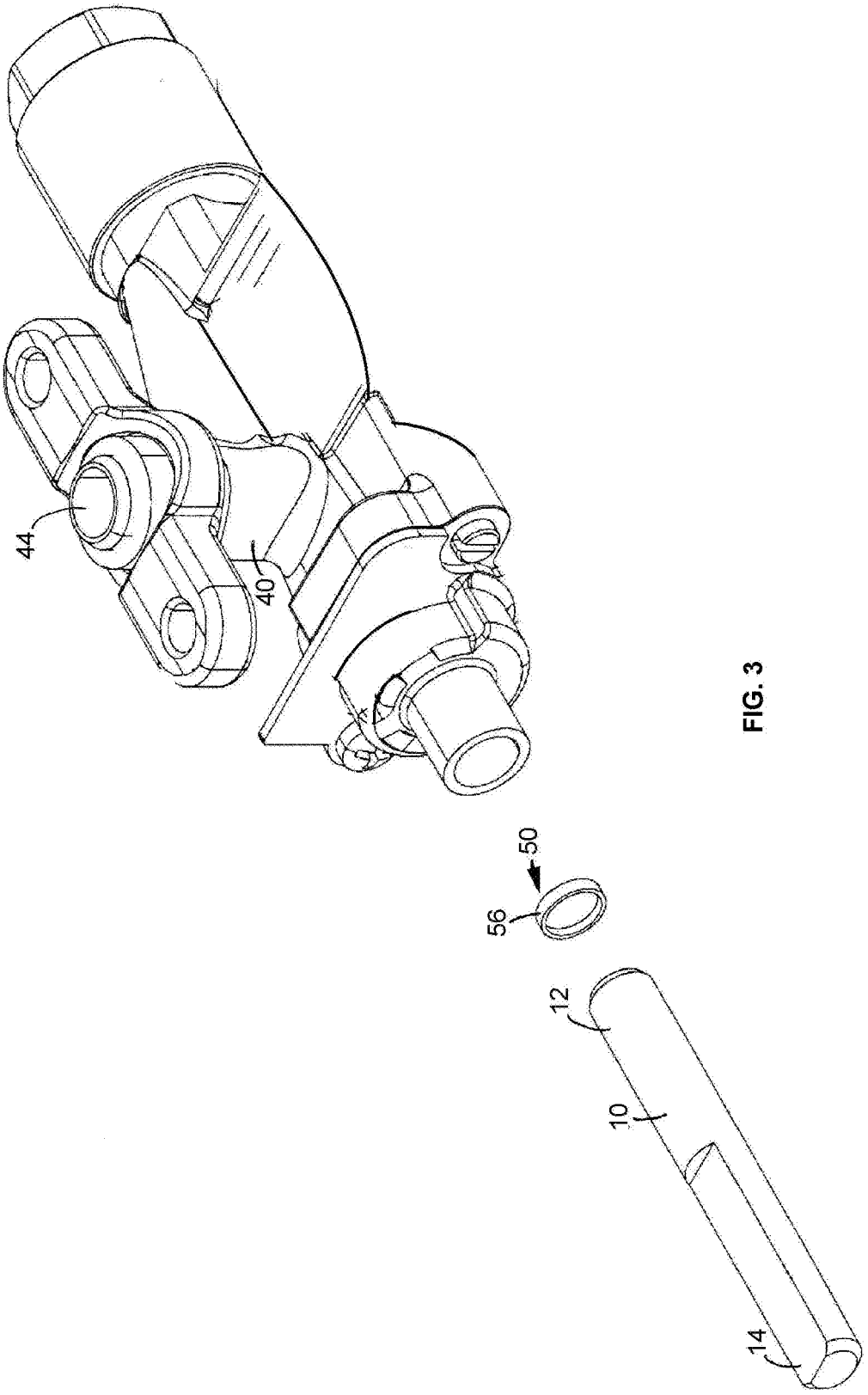

FIG. 3

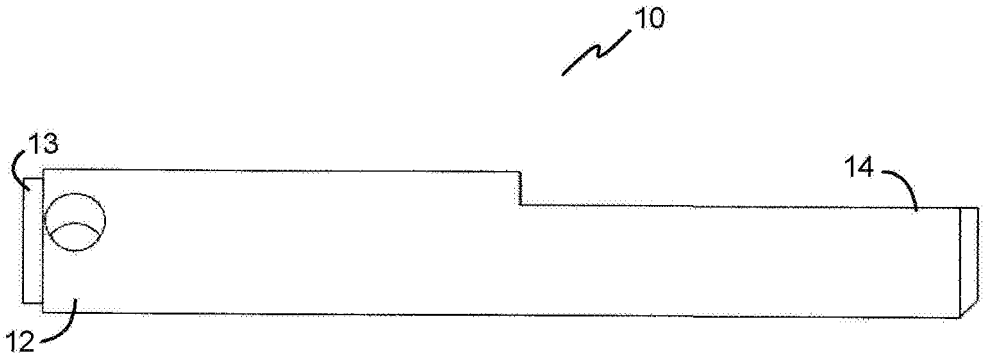

FIG. 4

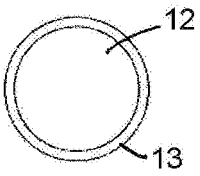

FIG. 5

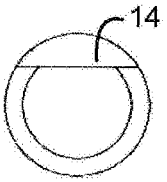

FIG. 6

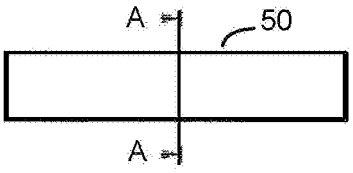

FIG. 7

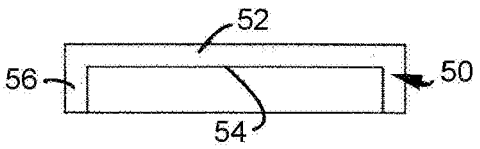

FIG. 8

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1672279 A1 **[0003]**