

Claims

- [Claim 1] A safety knob (50) of gas cooktop (55), comprising:
a wheel (20) and a circular spring (25) that is configured to store potential energy when the wheel (20) is rotated;
a ratchet (26) provided at back side of the wheel (20);
a lever assembly (30) comprising a claw (32) and a metallic cylinder (33), wherein the claw (32) is configured to allow tooth of the ratchet (26) to pass therethrough when the wheel (20) is rotated and ;
a knob (35) configured to be rotated by a user for turning on/off or switching the safety knob (50) between plurality of positions;
a thermocouple (40) with solenoid (45) configured to function as an electromagnet and attract the metallic cylinder (33) causing the claw (32) to latch with the teeth of the ratchet (26) after the wheel (20) is rotated; and
a support structure (10) operable to host the wheel (20), the lever assembly (30) and the thermocouple (40) with the solenoid (45).
- [Claim 2] The safety knob (50) of gas cooktop (55), as claimed in accordance with claim 1, wherein the support structure is planar and snap-fitted or screwed over the gas cooktop (55).
- [Claim 3] The safety knob (50) of gas cooktop (55), as claimed in accordance with claim 1, wherein the circular spring (25) positioned between the wheel (20) and the support structure (10), wherein a first end (25a) of the circular spring (25) is coupled with backside of the wheel (20) and a second end (25b) of the circular spring (25) is coupled with front side of the support structure (10).
- [Claim 4] The safety knob (50) of gas cooktop (55), as claimed in accordance with claim 3, wherein the first end (25a) of the circular spring (25) is configured to move along with rotation of the wheel (20), and the second end (25b) of the circular spring (25) is stationary.
- [Claim 5] The safety knob (50) of gas cooktop (55), as claimed in accordance with claim 1, wherein the lever assembly (3) further comprises a spring plate (31) attached to the claw (32), wherein in an event the tooth of the ratchet (26) passes through the claw (32), the spring plate (31) is energized.
- [Claim 6] The safety knob (50) of gas cooktop (55), as claimed in accordance with claim 1, wherein in an event the claw (32) latches with one of teeth of the ratchet (26) after the wheel (20) is rotated, the knob (35) is

unattended by the user and the user continues to cook.

- [Claim 7] The safety knob (50) of gas cooktop (55), as claimed in accordance with claim 1, wherein in event thermocouple tip (41) senses the fire over burner (42), an electric potential is generated at the solenoid (45) causing an electric current flow and the solenoid to function as the electromagnet.
- [Claim 8] The safety knob (50) of gas cooktop (55), as claimed in accordance with claim 1, wherein the plurality of positions of the safety knob (35) consists of high, medium or low position.
- [Claim 9] The safety knob (50) of gas cooktop (55), as claimed in accordance with claim 1, wherein in an event, flame of the gas cooktop (55) is extinguished, the electromagnet behavior of the solenoid (45) ceases, the metallic cylinder (33) releases from its attracted position with the solenoid (45), teeth of the ratchet (26) de-latches from the claw (32), the wheel (20) gets released and subsequently the knob (35) immediately rotates to off position.
- [Claim 10] The safety knob (50) of gas cooktop (55), as claimed in accordance with claim 1, wherein in an event, the user rotates the knob (35) to on position without igniting flame, the solenoid (45) electromagnetic behavior remains suspended, teeth of ratchet (26) remains unlatched with the claw (32) and the wheel (20) rotates along with the knob (35) to off position.