March 16, 1943. R. J. LAWRENCE 2,314,095

GAS RANGE VALVE CLOSING MEANS

Filed Nov. 12, 1941

Fig. 2

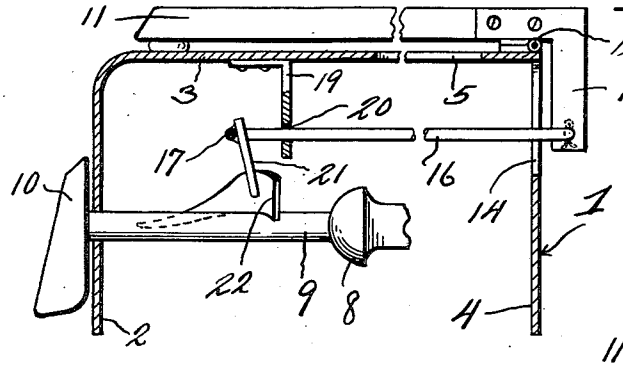


Fig. 4

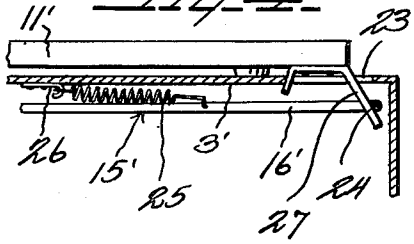


Fig. 3

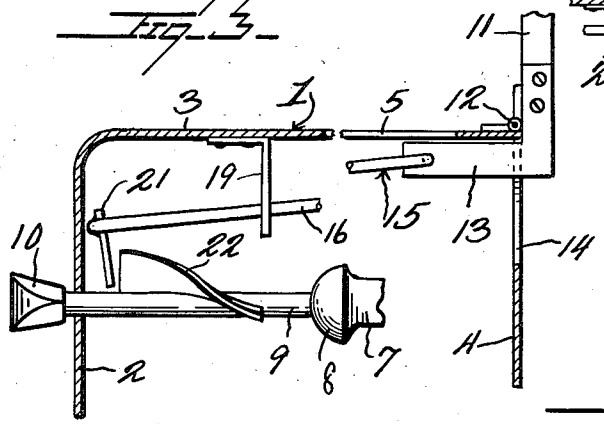


Fig. 5

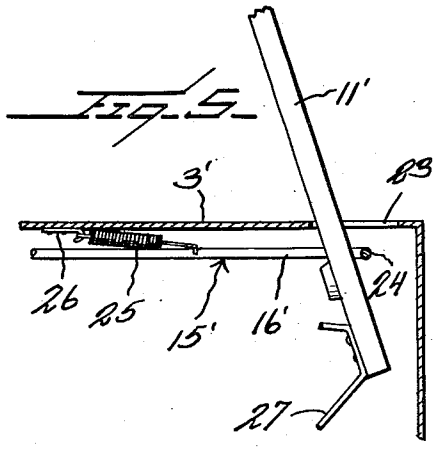
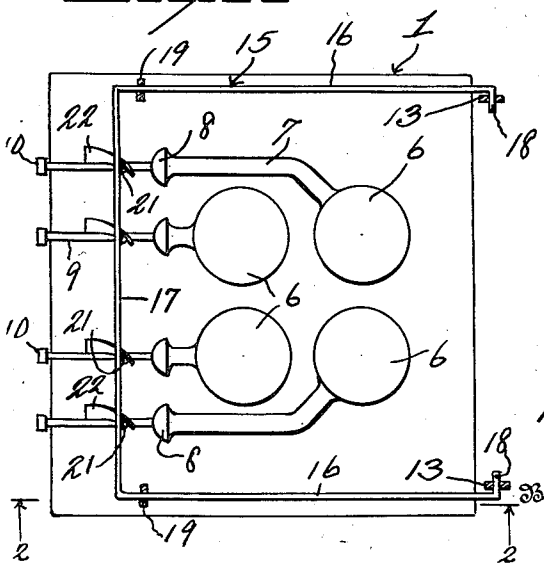


Fig. 1



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GAS RANGE VALVE CLOSING MEANS

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6 Claims. (Cl. 126—42)

This invention relates to the class of stoves and pertains particularly to improvements in gas stoves or gas ranges of the type used for domestic cooking.

Domestic gas cooking stoves of the type at present sold, where there is provided a hinged cover or top by which the stove may be covered for use as a table or the like, are provided with valve control handles in the front or face of the stove which connect with horizontally disposed rearwardly extending valve stems which are rotated for the turning on or off of the valve. In many instances no provision is made for preventing the accidental turning of these valves and, therefore, it sometimes happens that a valve handle will be struck and partly turned on so that the gas may be allowed to escape for some time without being detected or a child may turn the valve handle and leave the valve turned on with unpleasant or even fatal consequences.

The principal object of the present invention is to provide in a gas stove employing valves of the type stated, a novel means whereby when the cover or top of the stove is lowered the valve stems will be locked against turning but are automatically released or unlocked when the cover is raised.

Another object of the invention is to provide, in a stove of the type stated, an improved mechanism whereby a valve will be turned to off position if the top or cover of the stove is lowered without first turning the valve off by hand.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing, it being understood, however, that the invention is not to be considered as limited by the specific illustration or description but that such illustration and description constitute a preferred embodiment of the invention.

In the drawing:

Fig. 1 is a diagrammatic top plan view of the burners, valve stems, and adjacent parts of a stove showing the mechanism of the present invention associated therewith.

Fig. 2 is a fragmentary sectional view through the portion of a stove adjacent to the cover and showing the mechanism embodying the present invention operatively coupled between the cover and a valve stem, the central portion of the stove being broken away and the mechanism being in the valve locking position.

Fig. 3 is a view similar to Fig. 2 but showing the valve stem locking mechanism in unlocked position.

Fig. 4 is a conventional fragmentary illustration of a portion of stove structure showing a modified coupling between the cover or top and the valve stem control mechanism, this view illustrating that form of stove in which the cover when removed is dropped back and down in the back part of the stove structure.

Fig. 5 is a view similar to Fig. 4 but showing the cover partially removed and the valve locking mechanism released to be shifted to unlocked position.

Referring now more particularly to the drawing the numeral 1 generally designates the body of a gas range, a portion only of the upper part being shown in Figures 2 and 3 to which figures reference will be made first in describing one embodiment of the present invention. The front wall of the stove body is indicated by the numeral 2, the top wall by the numeral 3 and the back wall by the numeral 4. In the top wall the openings are formed for the movement upward of the heat from the burners, one only of these openings being here shown and indicated by the numeral 5.

The burners of the stove are conventionally illustrated in Fig. 1 and indicated generally by the numeral 6 and each of these burners has a gas conducting tube 7 connected therewith which leads from a valve structure 8, which valve has a control stem 9 horizontally disposed and supported for axial turning and extending through the front wall 2 of the stove body where it carries a control handle 10.

The table top or cover for the stove is indicated by the numeral 11 and in the construction shown in Figures 2 and 3 this cover is hingedly attached to the top 3 adjacent the rear edge thereof, as indicated at 12, so that it may be swung from a horizontal position in which it covers the top 3 to a vertical position in which it extends upwardly to form a back wall for the top 3 of the stove.

In accordance with the present invention there is secured to the cover 11 at the back thereof and adjacent each side edge, a lever arm 13 which extends perpendicular to the under side of the cover and which, when the cover is lowered or in closed position, extends downwardly adjacent the rear side of the back wall 4 of the stove. Adjacent each of these arms 13 the back wall 4 is provided with an opening 14 through which the adjacent arm can swing to a horizontal position when the cover is raised, as shown in Fig. 3.

Disposed within the body of the stove beneath

the top 3 is a substantially U-shaped frame which is indicated generally by the numeral 15 and which comprises the spaced parallel side bars 16 and the cross connecting forward bar 17 which joins the forward ends of the side bars. The free rear ends of the side bars 16 pass through the openings 14 in the back wall and each has the inwardly turned terminal finger 18 which forms a hinge pin which extends through a suitable aperture in the adjacent arm 13.

Adjacent the front or cross bar 17 of the frame there is secured at each side of the frame the depending guide bracket 19 having an aperture 20 through which the adjacent side bar 16 is slidably extended. These apertures are of suitable size and form to not only permit the bar 16 to slide therethrough but to also permit the bar to rock slightly as it is necessary that it do when it is reciprocated by the arms 13.

The bar 17 is disposed above and extends transversely of the stems 9 of the valve as is clearly shown in Fig. 2 and directly over each stem 9 the bar 17 carries a downwardly extending finger 21 which is inclined slightly from the vertical toward the rear of the stove.

Secured in any suitable manner to each stem 9 is a spirally directed fin 22 which does not extend entirely around the stem but only through a circular extent of approximately 90°. The length of this fin is slightly greater than the extent of movement of the adjacent finger 21 and the fin is disposed so that when the handle 10 is located in the valve-off position the rear end of the fin will be upon the top of the stem and will extend across behind the adjacent finger 21 while the forward end of the fin will be upon the left side of the stem, looking from the front of the stove, and will be swung around from this position in a clockwise direction when the stem is turned to open the valve.

It will be readily apparent that since the finger 21 is adjacent or against the forward side of the fin 22, at the rear end thereof, when the cover 11 is down, the cover may be raised freely and the fingers will move forwardly without being obstructed by the fin. When the fingers are in their forward position any one of the stems may be turned in a clockwise direction and this will bring the spiral fin around so that the forward end will be adjacent one side of a finger and the spiral will pass across behind the finger and part way around the stem as shown in Fig. 3. Consequently if the cover 11 is lowered while valve stem is in on position the frame 15 will be drawn back and the finger adjacent the fin of the open valve will move against the fin and will impart a lateral thrust thereto which will cause the stem to be turned until the finger reaches its rearmost position where the stem will have been turned back to the fully closed position for the valve.

In Figures 4 and 5 there is shown a portion of a stove of the type in which the cover 11' when swung upwardly and rearwardly for the uncovering of the top 3' of the stove, slides down through an opening 23 in the top of the stove, to a position at the back thereof. In this form there is provided a frame 15' which has a cross bar 24 in addition to the forward cross bar, not shown, which corresponds to the bar 17. This frame has connected with each side a spring 25, one end of which is attached as indicated at 26 to the top of the stove while the other end is attached to the adjacent side bar 16' of the frame. By means of these springs the frame is held up at its rear end while the forward part may be loosely slidably supported by a guide, not shown, like the guide bracket 19, and the frame 15' is also constantly urged forwardly by the springs so that the fin engaging fingers will be moved out of the way of the fins when the cover is raised.

In order to move the frame 15' back to effect the closing of any valves which may have been left open when the cover 11 is lowered, there is provided the rearwardly and downwardly extending bracket 27 which is secured to the back under side of the cover and which extends through the frame upon and adjacent to the forward side of the back cross bar 24. As the cover is swung forwardly and downwardly to closed position this rearwardly and downwardly inclining bracket 24 functions as a cam through its engagement with the cross bar 24 to slide the frame 15' rearwardly and place the spring 25 under tension. As previously stated, when the frame is moved rearwardly the fingers upon the forward side, not shown, will actuate the stems of any valves which may be in open position so as to turn the valves to the closed position as the cover is lowered. Also, as in the structure shown in Figures 2 and 3, the valves will be prevented from being turned to opened position while the cover is in its place over the top of the stove.

What is claimed is:

1. In a gas range having a control valve provided with a rotatable stem and a shiftable cover adapted to be positioned over the top of the stove and moved therefrom to an uncovering position; means for turning said stem comprising a spiral fin carried by the stem, an element supported for movement longitudinally of the stem and in position to engage a side of said fin when moved in one direction to impart lateral thrust to the fin for the turning of the stem from valve open to valve closed position, and an operative coupling between said cover and said element for effecting the movement of said element in the said one direction when said cover is moved into covering position.

2. A structure as set forth in claim 1, in which said fin and the said element for engaging and imparting lateral thrust to the fin are so constructed and arranged that the said element is free to move independently of the fin in the shifting of the cover from covering to uncovering position.

3. In a gas stove having a top and a valve controlled burner, the burner having a rotatable control stem and the top having a shiftable cover adapted to be moved from covering to uncovering position; a control mechanism for the valve comprising a spiral fin carried by the valve stem, a bar supported above and transversely of the stem for movement longitudinally of the stem, a finger carried by said bar and extending downwardly therefrom above the stem and positioned adjacent one side of said fin, and an operative coupling between the bar and said cover for effecting forward movement of the bar when the cover is shifted to uncovering position and backward movement of the bar when the cover is shifted to covering position, said finger and fin being so constructed and arranged that lateral thrust will be imparted to the fin to effect rotation of the stem when the finger is moved rearwardly while the valve is in open position.

4. In a gas stove having a top, a cover adapted to shift relatively to the top to covering or uncovering position and a burner control valve

having a rotatable stem; control means for said stem comprising a spiral fin supported on the stem, a bar member extending transversely of the stem and supported for movement longitudinally thereof, a finger carried by the bar and extending downwardly therefrom and having its lower end adjacent a face of said fin, means normally urging movement of said bar forwardly and means forming an operative coupling between the bar and the cover for shifting the bar rearwardly when the cover is moved to covering position, said finger and fin being so constructed and arranged that upon movement of the finger rearwardly while the valve is in open position the finger will engage the fin and impart lateral thrust thereto to rotate the valve stem to valve closed position.

5. A gas stove structure as set forth in claim 3, in which said operative coupling comprises a lever arm secured to said top to be swung forwardly and rearwardly with respect to the stove when the cover is moved from covering to uncovering position and vice versa, and a forwardly extending rod connected at its forward end to the bar and having its rear end pivotally coupled to said lever.

6. A gas stove structure as set forth in claim 4, in which said operative coupling forming means comprises a bracket secured to the under side of the cover to extend downwardly and rearwardly therefrom adjacent the rear edge thereof when the cover is in covering position, a rod connected at one end with said bar and extending rearwardly, and a second bar connected with the rear end of said rod and extending transversely of the stove across the top of and engaged by the bracket when the cover is in the stated covering position, the said bracket forcing the rod and bars rearwardly against the action of said movement urging means when the cover is in covering position.

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