Nov. 30 1943. T. E. PHARES 2,335,443

VALVE ARRANGEMENT FOR GAS RANGES

Filed May 8, 1940

Fig. 1.

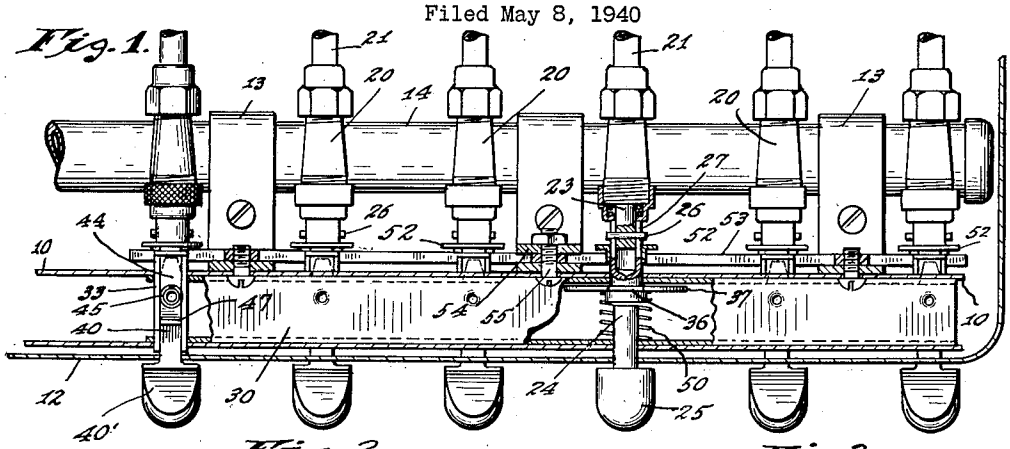


Fig. 2.

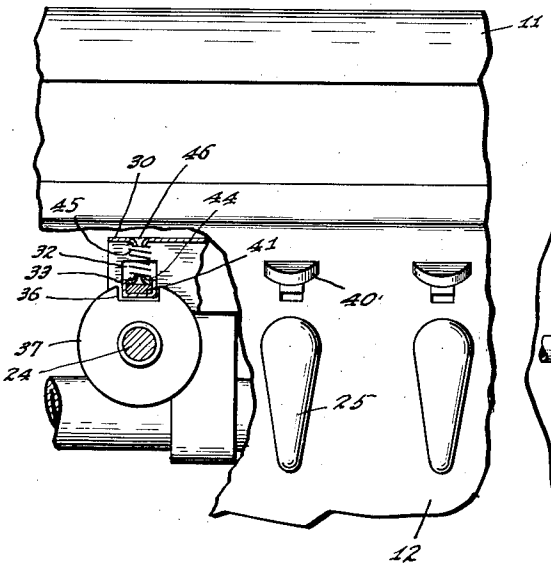


Fig. 3.

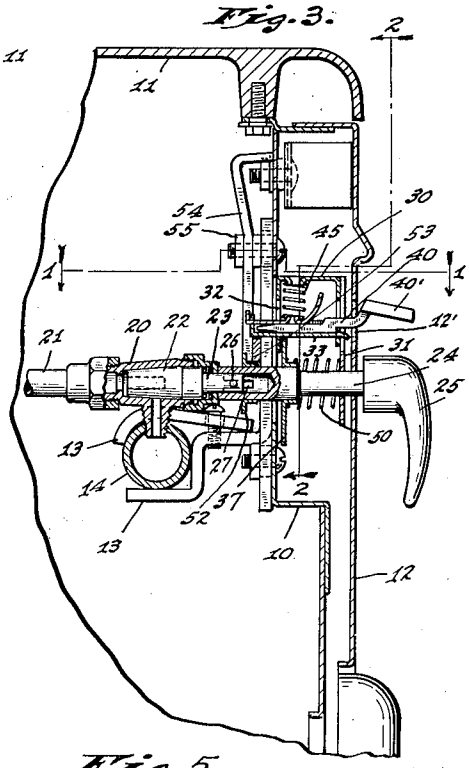


Fig. 4.

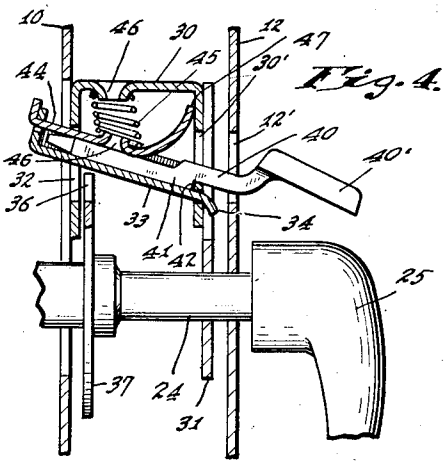
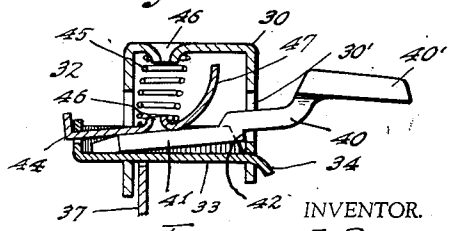


Fig. 5.



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2,335,443

VALVE ARRANGEMENT FOR GAS RANGES

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9 Claims. (Cl. 126—42)

My invention relates to gas ranges, and particularly to gas ranges having a plurality of burners. It is the object of my invention to prevent the accidental or unauthorized supply of gas to any of the various burners of a gas range, to provide means giving a visible indication as to which of the burners is being supplied with gas, and to ren ler readily accessible the valves which respectively control the supply of gas to the various burners.

In carrying out my invention, I preferably group the various burner-controlled valves into association with a single manifold extending parallel to the front face of the range, and I arrange the valves so that their axes will be horizontal and co-planar. In the front face of the range, and in alinement with each of the valves, I mount a rotatable valve-operating member which is axially movable into and out of operative connection with its associated valve. On each of the valve-operating members, I mount a disk having a notch which normally receives a locking member preventing rotation of the valve. For the purpose of withdrawing the locking member from such notch, I provide a removable key which projects through the front face of the range desirably immediately above its associated valve-operating member so that it can be depressed with the thumb to unlock the valve as the valve-operating member is rotated with the finger.

The accompanying drawing illustrates my invention: Fig. 1 is a fragmental horizontal section through the front portion of a gas range on the line 1—1 of Fig. 3; Fig. 2 is a fragmental front elevation of the gas range with portions thereof broken away on the line 2—2 of Fig. 3; Fig. 3 is a fragmental vertical section through the front portion of the range; and Figs. 4 and 5 are fragmental views similar to Fig. 3 but illustrating parts of the construction in different positions.

The range illustrated in the drawing has a frame 10, desirably of sheet-metal, to which a cooking top 11 is secured. Supported from the frame 10 is a front panel 12 which conceals the frame, the valves, and other portions of the range. Carried by the frame are one or more brackets 13 which serve to support a horizontal gas manifold 14 extending horizontally parallel to the front panel 12.

Valves 20 mounted in the manifold 14 respectively control the supply of gas to conduits 21 extending to various burners of the gas range. Each of the valves has a rotatable valve element 22 including a stem 23 which projects forwardly from the valve-body toward the front panel 12. Each of the valve stems 23 has associated with it a valve-operating member 24 which projects forwardly through the front panel 12 and is there provided with a control handle 25 by means of which it may be rotated. Each of the valve-stems 23 is operatively connected to its associated valve-operating member 24 in such a manner that the latter can be moved axially. Desirably this connection is effected by recessing the inner end of each valve-operating member 24 to receive the associated valve stem 23 and by providing the latter with a transverse pin 26 which extends into a slot 27 in the inner end of the valve-operating member, as will be clear from Figs. 1 and 3.

Between the frame 10 and the front panel 12, I mount a member 30 of inverted channel-shape in cross-section. The outer leg of this channel member 30 may be provided with a downward extension 31 which serves as a support for the various valve-operating members 24.

Above each of the valve-operating members 24, the rear flange of the channel member 30 is provided with a slot 32 which receives a valve-locking member 33, such valve-locking member being removably retained in the slot 32 as by being provided with a tongue 34 which extends through a slot in the front flange of the channel member 30 and is bent downwardly as indicated in Figs. 4 and 5. In its normal position, indicated in Fig. 5, the valve-locking member 33 rests on the bottom of the slot 32 and is received within a notch 36 in the periphery of a disk 37 rigid with the associated valve-operating member 24. The slot 32 has sufficient vertical extent to permit the member 33 to be rocked to the position illustrated in Fig. 4 in which it clears the notch 36 and makes possible rotation of the valve-operating member 24.

Each of the valve-locking members 33 is desirably arranged to be operated by a removable key 40. The key has a head 40' and a shank 41, the shank being adapted to extend through slots 12', in the front panel 12 and 30' in the front flange of the channel 30, into association with the locking member, which is made channel-shaped in cross-section to receive it. The key-shank 41 is provided in its lower surface with a shoulder 42 which normally engages the inner face of the front flange of the channel member 30 beneath the slot 30' to prevent withdrawal of the key from the locking member 33. Associated with each of the locking members is a key-retainer 44 positioned to engage the upper surface of the shank 41 and hold it against the bottom of the locking member. A spring 45 acting

between the horizontal web of the channel member 30 and the key-retainer 44 serves normally to hold the key in position and also to bias the locking member 33 downwardly. The spring 45 may be held in position by bosses 46 which are struck up from the channel member 30 and from the key-retainer 44 and which are received within the ends of the springs.

In the normal position of the locking member 33, illustrated in Fig. 3, the spring 45 acts to hold the key-shank in the locking member and the locking member against the bottom of the slot 32 and in the notch 36 in the associated disk 37. In this position, the shoulder 41 is in engagement with the front flange of the channel member 30 in order to prevent removal of the key. By depressing the head 40' of the key, the locking member 33 may be swung about the tongue 34 to lift its inner end clear of the notch 36, as shown in Fig. 4, so that thereafter the handle 25 may be operated to open the valve. As long as the valve is open, the notch 36 in the disk 37 is out of alinement with the locking member 33, and the locking member and its associated key are therefore held in tilted position with the head of the key depressed. The depressed outer end of any key is an indication that the associated gas-valve 20 is open.

To prevent unlocking of any of the gas valves, it is only necessary to remove the key 40. This can be done easily by raising the key-head 40', as indicated in Fig. 5, until the shoulder 42 clears the bottom of the slot 30' in the outer flange of the channel member 30, after which the key may be withdrawn. The outer end of each of the key-retainers 44 slopes outwardly and upwardly as indicated at 47 to facilitate insertion of the keys.

Desirably, each of the valve-operating members 24 is yieldingly held in association with its associated valve stem 23 by a compression spring 50 which acts between the disk 37 and the extension 31 of the channel member 30. Normally to prevent the withdrawal of the valve-operating members from association with their respective valve stems, each of the valve-operating members may be provided with a flanged collar 52 spaced inwardly from the frame 10. A horizontal bar 53 having a vertically extending shank 54 is supported from the frame in position to engage the flanged collars 52 to prevent any of the valve-operating members 24 from being drawn outwardly sufficiently far to disengage it from its associated valve-stem. The bar 53 may be held in position by a bolt 55 extending through the shank 54; and by loosening the bolt 55, the bar 53 may be removed, thus permitting any valve-stem to be moved forwardly to disengage it from its associated valve stem 23. This arrangement greatly facilitates removal of any valve 20 for purposes of inspection, replacement, or repair.

The operation of the device will be evident from the above description. With all the valves closed, all the locking members 33 will be in the respective notches 36 of the disks 37, thus preventing operation of any handle 25 to open the associated valve. When it is desired to open any valve, the head 40' of the associated key is depressed with the thumb, while the valve-handle 25 below is rotated with the fingers. As long as the valve remains open, even to a slight extent, the head of the associated key will be depressed and will constitute a clear signal that the valve is not closed. When the handle 25 is operated to close the valve, the notch 36 will be brought into alinement with the locking member 33 which will be forced downwardly into the notch by the spring 45 to lock the valve. If it is desired to prevent unauthorized opening of the valves, it is only necessary to remove the keys 40.

I claim as my invention:

1. In a gas range having a wall panel, a gas valve located in rear of said panel and having an operating member projecting forwardly therethrough, a locking means normally operative to lock said valve in closed position and in respect to which said valve operating member is movable in effecting adjustments of said valve, said locking means having a key-receiving portion located in rear of said panel, and a removable key, said panel being provided with an opening through which said key may be inserted into operative association with said locking means.

2. In a gas range having a wall panel, a gas valve located in rear of said panel and having an operating member projecting forwardly through said panel, a locking member normally disposed in locking position to lock said valve in closed position and having a key-receiving portion located in rear of said panel, said locking member being pivotally mounted on a horizontal axis and movable about such axis into and out of locking position, and a removable key, said panel being provided with an opening through which said key may be inserted into operative association with said locking member.

3. The invention set forth in claim 2 with the addition that said key is disposed immediately above said operating member when it is in association with said locking member, the outer end of said key being movable downwardly to retract said locking member from its locking position.

4. In a gas range, a valve having a rotatable valve member, means operative normally to hold said valve member in closed position, said means comprising a generally horizontal locking member pivoted on a transverse axis and having a longitudinal, upwardly opening groove, a key having a shank receivable in said groove, a key-retainer carried by said locking member above said groove, yielding means forcing said key-retainer downwardly against such key-shank, said key-shank being provided in its lower surface with a transverse shoulder, and means engaging said shoulder when said key-shank is seated in said locking member for preventing withdrawal of the key.

5. The invention set forth in claim 4 with the addition of a stationary member, said yielding means re-acting against said stationary member and biasing said locking member toward locked position.

6. The invention set forth in claim 1 with the addition of common means for holding said key in operative association with said locking member and for biasing said locking member toward locked position.

7. The invention set forth in claim 2 with the addition of common means for holding said key in operative association with said locking member and for biasing said locking member toward locked position.

8. In a gas range, a valve having a movable valve member, a locking member operative when in locking position to prevent movement of said valve member from closed position, a removable key engageable with said locking member to move it from locking position, and common means for releasably holding said key in operative associa-

tion with said locking member and for biasing said locking member toward locking position.

9. In a gas range a valve having a rotatable valve member, means operative normally to hold said valve member in closed position, said means comprising a locking member pivoted on a transverse axis and having a key-receiving groove, a key having a shank receivable in said groove by movement longitudinally thereof, a key-retainer carried by said locking member in said groove, yielding means forcing said key-retainer toward one wall of said groove, said key-shank being provided on the side opposite said key retainer with a transverse shoulder, and means engaging said shoulder when said key-shank is seated in said locking member for preventing withdrawal of the key.

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