

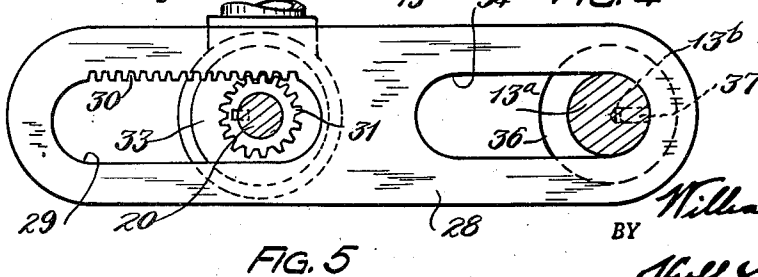
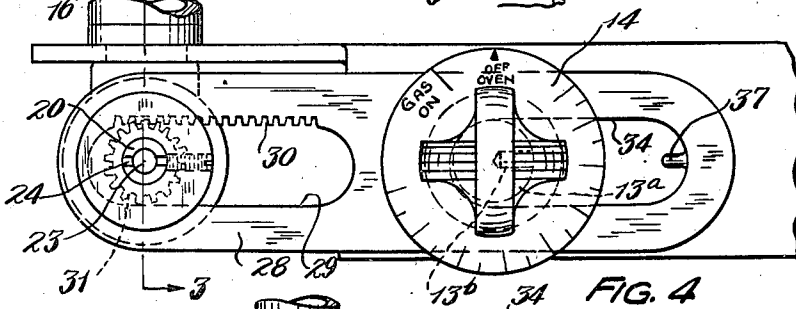
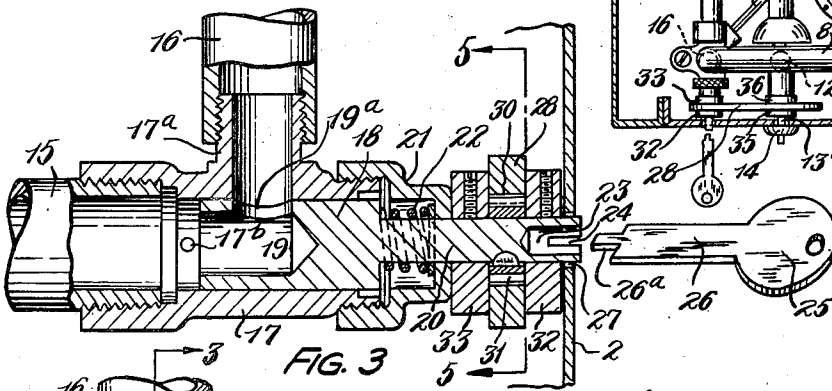
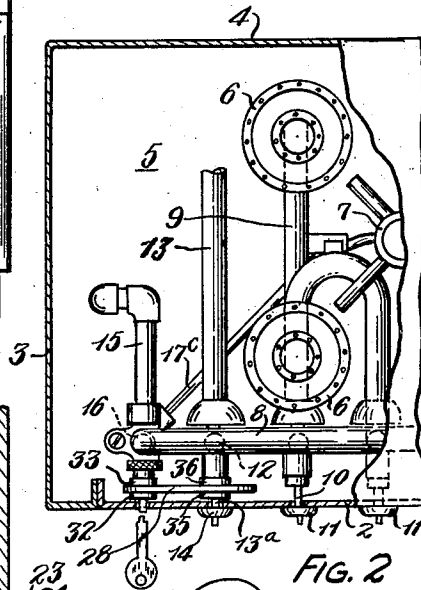
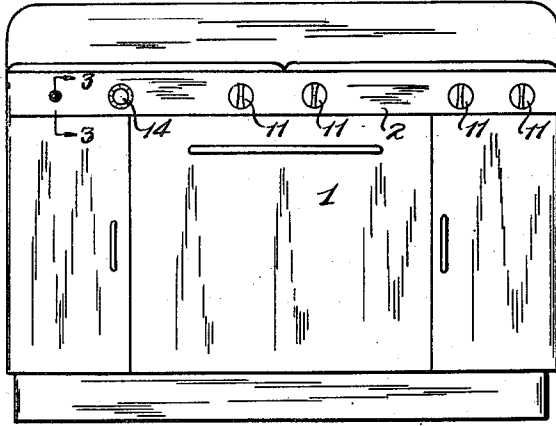
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MASTER SAFETY VALVE WITH OVEN VALVE LOCK ATTACHMENT

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MASTER SAFETY VALVE WITH OVEN VALVE
LOCK ATTACHMENT

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6 Claims. (Cl. 126—42)

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This invention relates to safety devices such as are applicable for use with ranges employing gas for fuel.

In the generality of gas ranges, the handles for the valves which control the supply of gas from the manifold to the burners are readily accessible. Due to this arrangement, there is an ever-present liability that the operator may either leave one or more of the burner valves open or accidentally turn on one or more of the same. Where the stove is equipped with a pilot burner, this inadvertence would result merely in consuming gas unnecessarily; but, where there is no such pilot burner, or where the pilot burner may have become ineffective, gas can escape through the valves thus inadvertently opened, with a resultant danger of explosion and fire. This inadvertent opening of the valves is more usually due to the ignorance and inquisitiveness of small children who, even if they should recognize the odor of the escaping gas as being something unusual, might not be able to identify the source of the odor, much less to eliminate the same by manipulating the valves.

The principal object of my invention is to provide for gas ranges a safety control valve which is connected in the gas supply in advance of the manifold through which gas is supplied to the upper service burners and to the oven burner and which is operable to control the supply of gas to the said manifold and thence to the said burners and which can be closed and locked in a closed position whereby the opening thereafter of the valves which control the supply to said upper service and oven burners will be ineffective to enable any of said burners to receive any gas.

A further and more limited object of the invention is to provide, for a burner arrangement such as described, a safety control device which will also positively lock the oven burner valve in its closed position when the safety control valve is in its closed position.

I accomplish the foregoing objects and overcome the dangers referred to by the construction and arrangement of parts shown in the drawing hereof, wherein Fig. 1 represents a front elevation of a range embodying my invention; Fig. 2 a fragmentary top plan view of such range; Fig. 3 an enlarged sectional view taken on a plane indicated by the line 3—3 on Figs. 1 and 4, showing the relation of the safety control valve to the operating instrument or key used therewith and the front panel or apron of the range; Fig. 4 a front elevation of the safety control valve and

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the oven burner valve showing the means for connecting the former to the oven burner valve and for locking the latter in its closed position; and Fig. 5 a sectional detail taken on the line 5—5 of Fig. 3 illustrating the said connecting means positioned to lock the oven burner valve in closed position.

Referring to the drawing, 1 denotes a gas range, said range comprising the usual front wall, doors, framework and having a front panel or apron 2, adjacent to the top thereof, the range being also provided with the usual side walls 3 and rear wall 4.

The upper portion of the range is provided with the usual top service compartment 5 in which are located the service burners 6 and the pilot burner 7. The gas manifold 8 extends along the front of the compartment 5. From this manifold, pipes 9 extend to the service burners, each pipe being provided with an ordinary hand-operated valve, the stems 10 of which valves extend through the apron 2 and are provided in front of the said apron with the operating handles 11.

12 denotes the connection between the manifold and the pipe 13 by means of which gas is supplied to the oven burner, the stem of the valve which controls said supply being shown at 13^a. This stem also projects through the apron 2 and is provided with the operating handle 14. The oven burners are usually provided with thermostatically-operated means for controlling the rate of supply of gas to the oven burner, the rate of supply being regulated to insure the maintenance of certain degrees of temperature in the oven corresponding to temperature indicia marked upon the operating handle of the valve.

The construction and arrangement of the parts thus far described are such as are well known and in general use in the gas range trade.

In ranges as constructed prior to my invention, the manifold has been connected directly to a gas line of the house. In the present instance, however, a safety control valve is interposed between such gas line 15, and the manifold extension 16.

The valve comprises a casing 17 which is internally threaded at one end for the reception of the gas line 15 and which is provided with a cylindrical bore for the reception of a rotary plug 18 having a bore 19 extending inwardly from its connection with the gas line to and beyond the nipple 17^a which connects the casing with the manifold extension 16. A port 19^a enables communication to be established, controlled, and cut off between the gas line 15 and the manifold.

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The plug is provided with an operating stem 20 projecting through a cap 21 which is threaded onto the end of the valve casing which faces the apron 2, a spring 22 being inserted between said cap and the body of the plug. The stem is provided within its outer end with a recess 23 and with opposed slots 24, extending from said recess. The recess and slots are provided for the reception of the coacting end of an operating tool, such as the key 25 having a stem 26 provided with a tongue 26^a, the tongue being adapted to be received within the recess 23 while the shoulders provided between said tongue and the body of the stem 26 abut against the walls defining the bottoms of the slots, the stem being of sufficient width to engage the walls which define said slots. The casing 17 is provided with an aperture 17^b, between the end of the gas line 15 and the plug 18, by means of which gas may be delivered through the pipe 17^c to the pilot burner 7.

It will be noted that the apron 2 is provided with an opening 27 in alignment with the recessed end of the valve stem 20, the said opening being of such diameter as to enable the stem of the key 26 to be inserted therethrough into the recessed end of the valve stem and to be capable of rotation within said opening. Except for this opening, the safety control valve is inaccessible for normal operation, being completely enclosed within the limiting walls of the range.

Assuming that the operating key or instrument is inaccessible to children, the safety control valve, when closed to cut off the supply of gas to the surface burners, cannot be opened more or less by them or anyone else, whereby the danger of fire and explosion will be eliminated.

In the great majority of gas ranges as at present constructed, the valve which controls the supply of gas to the oven also communicates with the manifold and is provided with the usual automatic control, including a thermostat element extending into the oven. Even though the supply of gas to such burner will be cut off by the closing of the safety control valve, it might thereafter be turned to open position and, should the oven pilot burner fail to function, the subsequent opening of the safety control valve would result in flooding the oven compartment with unconsumed gas, with attendant danger. In order to prevent such manipulation of the valve stem 13^a, I have provided a connection between the same and the safety control valve whereby, when the said valve is closed, the stem of the oven burner supply valve will be positively locked in closed position. As shown in the drawing, I have accomplished this by means of a link 28 having at one end a slot 29 through which the outer portion of the valve stem 20 projects, the upper wall of the slot being shown as provided with a rack 30 engaging a pinion 31 on the valve stem. Collars 32 and 33 secured to the valve stem serve to maintain the rack in engagement with the pinion. The opposite end of the link is provided with a slot 34 which is adapted to receive the outer portion of the valve stem 13^a, being retained on said stem by means of collars 35 and 36. The valve stem is provided with an aperture 13^b extending therinto and so arranged as to receive an anchoring projection 37 carried by the wall of the said link which is remote from the slot 29, when the valve is in its closed position. It will be evident that, due to the manner of connecting the stems for the safety control valve and the oven burner, when

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the oven burner valve is set to the "off" or closed position, it will be positively locked in such position when the safety control valve is closed and will be retained in such locked position until the latter valve is opened.

It will be apparent from the foregoing that, due to the construction and arrangement of parts set forth herein, I have contributed to the safety of gas burning ranges whereby the dangers due to unignited escaping gas have been practically eliminated.

Having thus described my invention, what I claim is:

1. In a cooking range having a burner supply pipe, a gas line, a rotary valve for controlling the delivery of gas from the said line, a conduit connected with and controlled by the said valve for delivering gas to the said supply pipe, a rotary valve for controlling the supply from the said conduit to the burner supply pipe, each of the aforesaid valves having an operating stem adapted by its rotation in one direction to shut off the flow of gas therethrough, a pinion on the stem of the first mentioned valve, a link having one portion thereof provided with a rack meshing with said pinion and provided on another portion thereof with a locking member, and a cooperating locking member carried by the stem of the valve for the burner supply pipe, the said locking members being so located as to be brought into engagement with each other, when the valve in the burner supply pipe is in its closed position, by the rotation of the stem of the first mentioned valve to effect the closing of said first mentioned valve.

2. In a cooking range having a burner supply pipe, a gas line, a rotary valve for controlling the delivery of gas from the said line, a conduit connected with and controlled by the said valve for delivering gas to the said supply pipe, a rotary valve for controlling the supply from the said conduit to the burner supply pipe, each of the aforesaid valves having an operating stem adapted by its rotation in one direction to shut off the flow of gas therethrough, a pinion on the stem of the first mentioned valve, a link having a slot at one end adapted to receive the pinion on the first mentioned valve therewithin and provided with a rack adapted to mesh with said pinion, the said link having at its opposite end a slot adapted to receive the stem of the valve for the burner supply pipe, the stem of the last mentioned valve and the wall of the second slot which is remote from the first slot being provided the one with a projection and the other with an aperture for the reception of said projection, the said aperture and projection being so arranged as to be brought into locking engagement with each other, when the valve in the burner supply pipe is in its closed position, by the rotation of the stem of the first mentioned valve to a position to close said first mentioned valve.

3. In the cooking range set forth in claim 2, the projection being carried by a wall of the second slot of the link, which wall is remote from the first slot, and the aperture for said projection being formed within the stem of the valve for the burner supply pipe.

4. In a cooking range having several burners, a gas line for supplying gas to said burners, valves individually controlling the supply from said line to said burners, a safety control valve in the gas line in advance of the aforesaid burners; the said safety control valve having a valve stem and the said range being provided with a wall

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which overhangs the safety control valve and the stem thereof and which is provided with an opening adjacent to the outer end of the valve stem thereof whereby an operating tool may be inserted through said opening and applied to the outer end of the said valve stem, one of the first mentioned valves, having an operating stem extending through the said wall and there provided with an operating handle, a link connected to the stem of the safety control valve for reciprocation by the rotation of the said stem in opposite directions, the said link and the operating valve stem which projects through the said wall having cooperating locking elements adapted to be brought into engagement with each other when the last mentioned stem is in its closed position and the stem of the safety control valve is also in its closed position, the aforesaid link and the cooperating locking elements being located behind the aforesaid wall.

5. In a cooking range having several burners, a gas line for supplying gas to said burners, valves individually controlling the supply from said line to said burners, a safety control valve in the gas line in advance of the aforesaid burners; the said safety control valve having a valve stem and the said range being provided with a wall having an opening adjacent to the outer end of the valve stem whereby an operating tool may be placed at said opening and applied to the

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outer end of the said valve stem, one of the first mentioned valves having an operating stem extending through the said wall and there provided with an operating handle, a link connected to the stem of the safety control valve for reciprocation by the rotation of the said stem in opposite directions, the said link and the operating valve stem which projects through the said wall having cooperating locking elements adapted to be brought into engagement with each other when the last mentioned stem is in its closed position and the stem of the safety control valve is also in its closed position, the aforesaid link and the cooperating locking elements being located behind the aforesaid wall.

6. In combination with a stove having a set of individually controlled burner supply valves and a master control valve arranged to supply all the burners through the individually controlled valves, a linkage mechanism connected with the master valve and engaging one of the individually controlled valves and having blocking means operating on said one valve to prevent opening of said one valve when the master control valve is closed, and further blocking means operating on the master control valve linkage to prevent closing of the master control valve in event said one valve is open.

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