June 7, 1960 G. W. KAMIN 2,939,453

GAS RANGE

Filed Dec. 5, 1956 2 Sheets-Sheet 1

Fig. 1

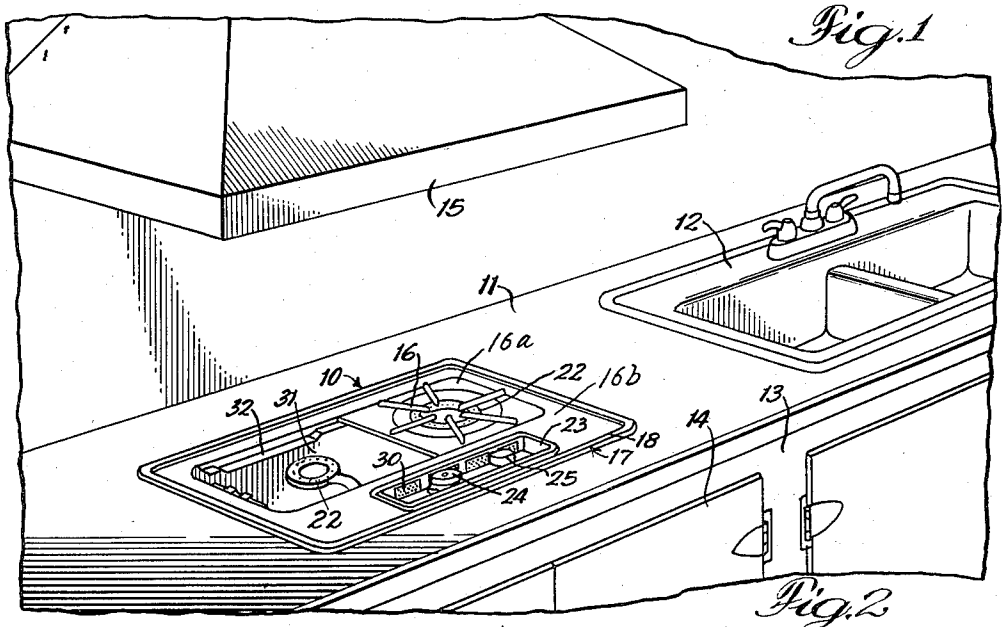
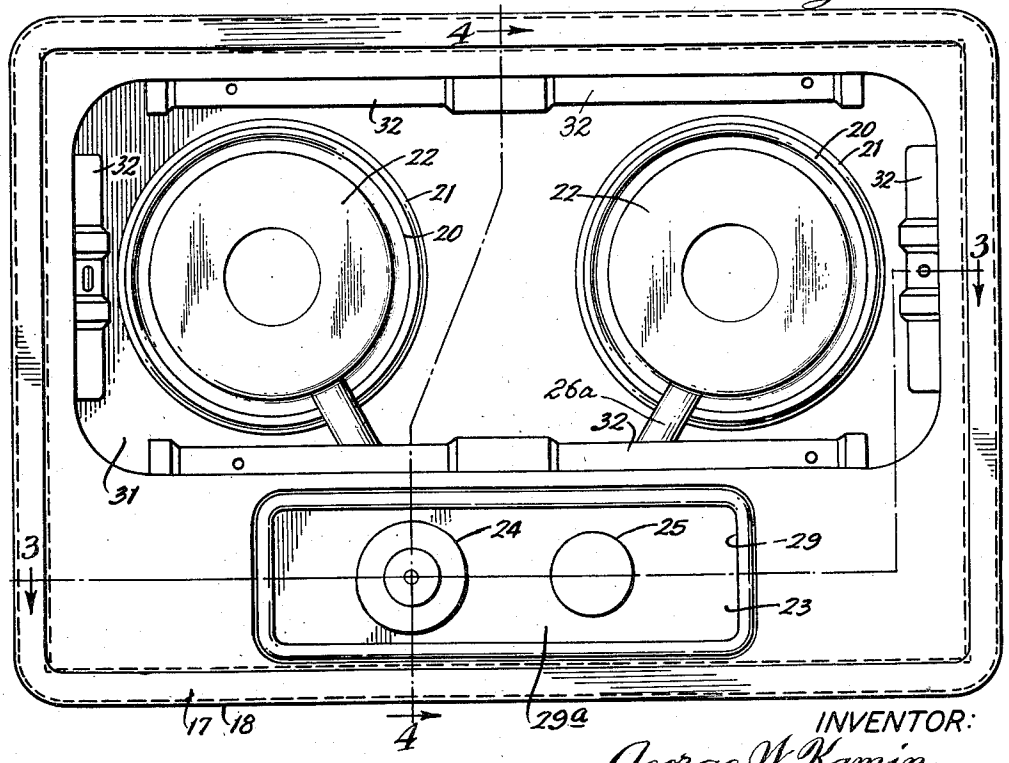


Fig. 2



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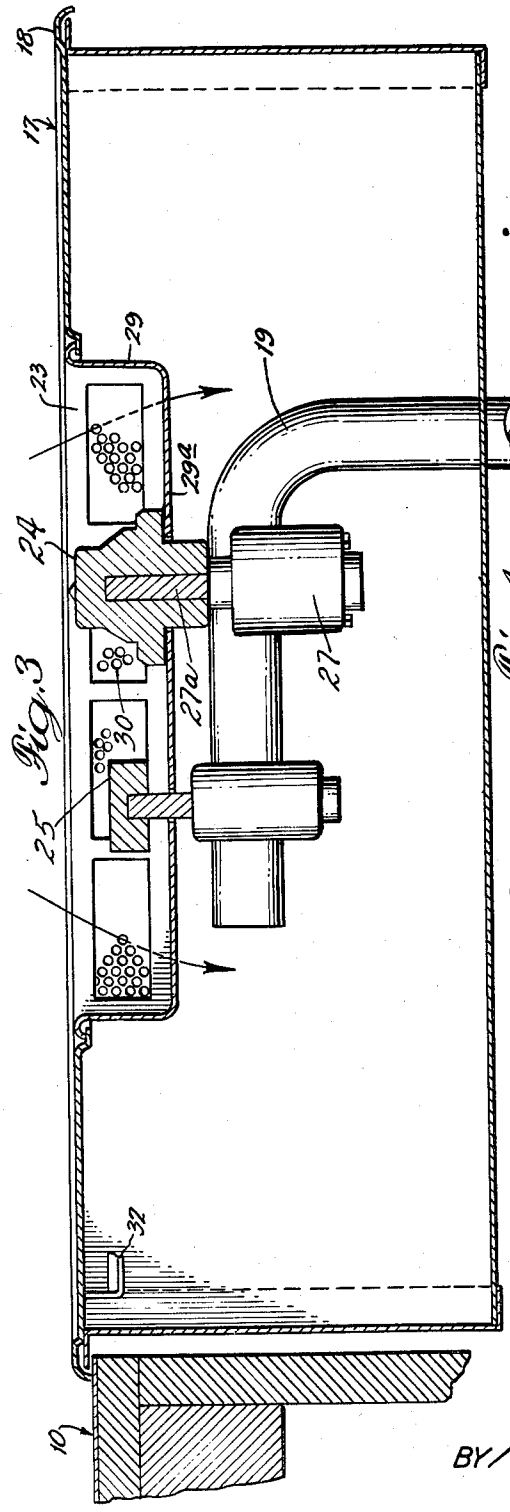


Fig. 3

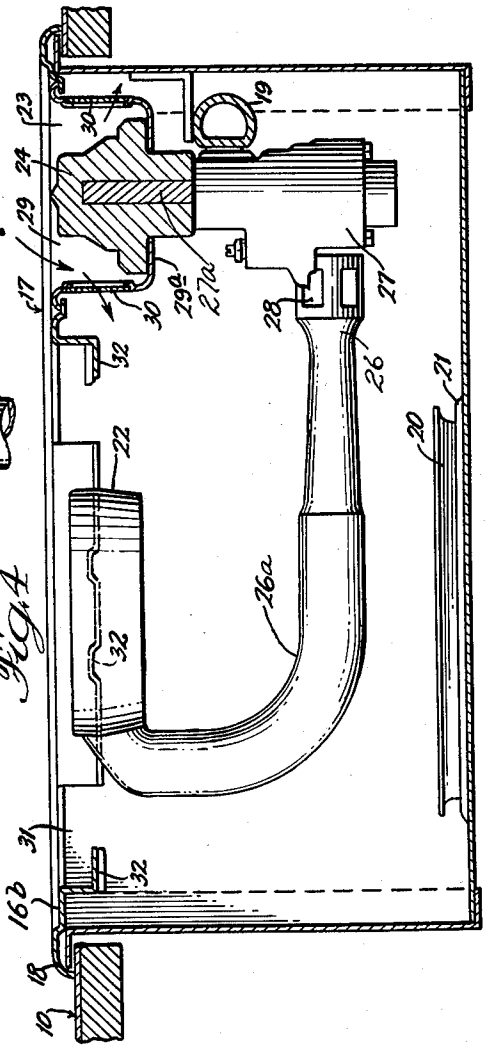


Fig. 4

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United States Patent Office 2,939,453 Patented June 7, 1960

2,939,453

GAS RANGE

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Filed Dec. 5, 1956, Ser. No. 626,503

5 Claims. (Cl. 126—214)

This invention relates to an improvement in a gas range, and, more particularly, to an improvement in the operating area in a gas range.

My invention has particular application to a type of gas range known as a counter unit. This type of range is becoming increasingly popular in contemporary housing where emphasis is placed on efficient kitchen arrangement. When a gas range is incorporated into a counter surface, or for that matter, a wall surface so as to serve both the aesthetic and functional purposes characteristic of modern housing, several problems arise that were not present in the conventional installation of a gas range along one wall of a kitchen. Not only does the gas range of my invention solve these new problems, but at the same time it avoids a vexing problem present in the older type of gas range.

The vexing problem to which I have referred concerns the control knobs of the gas range. Conventionally, these knobs are positioned on the front vertical surface of the range casing or are on the top surface and protrude above the burner surface and hence are subject to several disadvantages. Two of these disadvantages appear most prominently during the operation of the gas range. The control knobs, because they protrude, can be inadvertently bumped with the result that the flame setting is changed and, if they are bumped by a pot or the like, the contents may be spilled with attendant difficulties in cleaning up. Even though these knobs protrude in the air when mounted on the top surface, a second problem arises in the fact that after the burner with which they are associated has been ignited for a period these control knobs become untouchably hot. These problems are intensified in the case of a counter unit where the only exposed surface is the top surface which contains the burners and must perforce contain the control knobs. Since this type of unit is especially intended for use in a streamlined kitchen, it is of compact arrangement and hence, the problem of undue heating of the control knobs is seriously aggravated. Having the knobs on the top surface presents a ready obstacle to the free movement of pots and pans to and from the burner units which increases the chance of bumping and hence unsightly spillage.

The very compactness of the counter unit and its intended installation bring about another problem which involves the provision of combustion air. Previously a gas range being more or less out in the open could have an access port for combustion air at any area in the casing deemed suitable by the manufacturer. This however is not possible in the counter unit since it is more or less completely enclosed except for the top surface.

It is therefore an object of my invention to provide a new and improved gas range. Another object is to provide an improved burner and control arrangement for a gas range. Yet another object is to provide the burner and control arrangement in the top surface of a gas range. Another object is to provide an improved gas range which overcomes the aforementioned difficulties and problems.

Other objects and advantages of my invention will appear as this specification proceeds.

Essentially my invention includes the provision of recessed controls in a gas range. In one embodiment of my invention I provide these recessed controls in a well having vent means associated therewith which permits the introduction of combustion air and at the same time maintains the knobs in a touchably cool condition. By combining the two above features I provide a gas range which is eminently suited for the counter type construction found so desirable in contemporary housing. The above mentioned elements can be combined along with the burner units into the top surface of a gas range casing to provide an eye-appealing yet distinctively functional unit. At the same time this arrangement eliminates the need for expensive metal working on the casing which was characteristic of both the old style gas range and previously employed counter units. The elimination of such work contributes materially toward reducing the cost of such a unit, hence making it available to more homemakers. In the case of the modern counter unit one advantage achieved by my invention cannot be overemphasized, this relating to the safety achievable thereby. In providing a gas range unit constructed according to the teachings of my invention, messy spillage is avoided that might result in a person's slipping and falling. The control arrangement also prevents injury to children. By providing the controls recessed in the top surface, they are not ordinarily within the range of vision of a child so as to tempt him to manipulate them with possible injury to himself. They are also fairly inaccessible so that if the child has the idea of playing with the controls even without seeing them, it is a more difficult feat to perform.

My invention will be explained in conjunction with the accompanying drawing in which Fig. 1 is a fragmentary perspective view of a contemporary kitchen featuring a counter type range unit constructed according to the teaching of my invention; Fig. 2 is a top plan view of the range unit of Fig. 1; Fig. 3 is a cross-sectional view taken along the line 3—3 of Fig. 2; and Fig. 4 is a second cross-sectional view of Fig. 2 taken along the line 4—4 thereof.

Referring now to the drawing and in particular Fig. 1, the numeral **10** generally designates a counter type range unit. Range **10** is shown installed flush with the top surface of counter **11** which also includes sink **12** and front wall **13** which accommodates doors **14**. Disposed above range **10** and suspended from a kitchen wall or ceiling is exhaust hood **15**.

The foregoing environmental description is given for clearness of understanding only and is not intended to be a limitation on the scope of my invention. It is to be appreciated that consistent with contemporary kitchen design range **10** might be recessed in a wall, either permanently or removably so.

In Figure 1, the numeral **16** designates a spider-like grate support element and the numeral **16*a*** designates a pan supported on the top wall **16*b*** of the casing generally designated **17**. In a two burner range, two grates and pans are usually employed. One grate and pan set is omitted from Figure 1 to show the portion of the casing which supports the pan and grate.

Referring now to Fig. 2 which is a top plan view of the range unit shown in Fig. 1 but without spider grates **16** and pans **16*a*** present thereon, it is to be noted that range unit **10** includes a generally rectangular box-like casing **17**. Casing **17** is provided with a laterally extending lip **18** which lies in the plane of the top surface of casing **17** and which can be seen more clearly in Fig. 3 and 4. Flange or lip **18** provides a convenient support element for suspending casing **17** within a rectangular opening in counter **11**. As will be appreciated as this

specification proceeds, the amount of carpentry work and other labor involved in the installation of the range unit of my invention is minimal. For example, the cut-out of the counter is the only carpentry work to be done by the contractor in installing the gas range of my invention. Casing **17**, except for the top surface, can be considered a solid, there being no vents provided therein. The only substantial interruption to the smooth side and bottom walls of casing **17** is an opening provided in the bottom wall (as pictured in Fig. 3) permitting entry of gas supply line **19**. This, then, represents the only additional work to be done by the contractor in installing the gas range of my invention. It consists of connecting gas supply line **19** to a suitable source of gas. Referring to Figs 2 and 4, drop trays **20** can be observed which are removably mounted on the bottom of casing **17** and maintained in place by a ridge **21** provided in the bottom of casing **17**.

Referring again to Fig. 2 it is to be noted that the top surface of casing **17** includes two gas burners **22** and a control knob area **23** which contains the contral knobs associated with gas burners **22**. This can be seen in perspective in Fig. 1. In one construction of my invention I provide one burner thermostatically controlled and one burner having a conventional manually operated control. In Fig. 2 the control on the left is the thermostatic control and is designated **24** which is also shown in cross-section in Fig. 4. The manually operated control knob is seen in Figs. 1 and 2 and is designated **25**.

Referring now to Fig. 4 thermostatically operated burner **22** is shown connected to a gas supply line **19** by means of a pipe composed of sections **26** and **26***a*. Inter-connected between the pipe composed of sections **26** and **26***a* and supply line **19** is thermostatically actuated valve **27** shown in only partial section. The stem **27***a* of valve **27** provides the means for mounting control knob **24**. Adjacent the inter-connection of valve **27** and the pipe composed of sections **26** and **26***a* are primary combusion air openings **28**.

Air for mixing with the gas flowing in a pipe composed of sections **26** and **26***a* enters through openings **28** after passing through the top surface of casting **17**. For this purpose, top casing **17** is provided with a well or recessed portion **29** for control knob area **23**. The side walls of well **29** are perforated to permit entry of combustion air as indicated by the arrows in Figs. 3 and 4. At the same time, control knobs **24** and **25** are completely received in well **29** so that there is no protuberance in the top surface of casing **17**. Not only does the air entering through the opening **30** in the walls of well **29** provide the primary combustion air entering openings **28** but also the secondary combustion air which flows out of casing **17** around burners **22**.

The substantial advantages of my invention can be appreciated from a consideration of the comparison tests set forth in the example below.

Example

For the purpose of determining the operational characteristics of a gas range constructed in accordance with my invention and comparing the same with a unit not embodying the salient features, I constructed two units each having a top surface having a major dimension of about 20 inches and a minor dimension of about 14 inches. The depth of the casing was slightly under 7 inches.

The top surface of each casing was provided with an opening **31** for burners **22** that was about 18½ inches long by 9 inches wide. Associated with each opening were ledges **32** that extended inwardly to receive the pan **16***a* and grates **16**. In one unit I provided an opening **29***a* about 10 inches long by 3 inches wide into which I removably fitted a tray having a depth of about 1¾ inches and control knobs **24** and **25**. The other unit had control knobs **24** and **25** mounted in a protruding fashion above the top surface of casing **17** by extending through small circular openings in a conventional manner.

The unit having the protruding knobs was provided at additional cost with an air entry opening in one of the side walls of casing **17**. There was no extra cost involved in providing the opening for receiving well **29** since this opening could be punched at the same time that the opening for burners **22** was provided.

On each unit I placed a 10 inch diameter pot filled with water and heated the same to a boiling temperature, maintaining it at about boiling for one hour. After that period of heating the protruding control knob was found to be untouchably hot while the recessed control knob was comfortably cool to the touch.

The above described construction permits another advantage to be achieved through the use of my invention. This is derived from the fact that well **29** is supported on the top surface of casing **17** in a manner similar to the support of casing **17** itself on counter **11**. Control knobs **24** and **25** are removably mounted on the valve stem associated with the control valves so the entire well assembly is removable for cleaning. In other words, knobs **24** and **25** can be conveniently removed from their mounting on the valve stems after which well **29** can be lifted out of its support on casing **17** for washing. Furthermore, the two openings through which the valve stems extend into well **29** provide convenient finger gripping apertures for the removal of well **29**. The entire unit of my invention is readily cleanable since drip trays **20** are removable from casing **17** through the larger opening **31** in the top surface of casing **17** which accommodates burners **22**. Top removal of drip trays **20** permits the construction of a much shallower casing, further contributing to the low cost of construction of the range of my invention and to the ease with which it can be installed in a modern carefully designed kitchen.

Although I have shown and described a range having two burners it is to be understood that gas ranges having other numbers of burners can be constructed in the practice of my invention.

The foregoing detailed description has been given for clearness of understanding only and no unnecessary limitations are to be inferred therefrom.

I claim:

1. In a gas range, a box-like casing equipped with a top wall having a plurality of burner openings and a control knob opening therein, gas supply conduit means mounted in said casing and terminating in burners positioned in each of said burner openings, a plurality of control valves in said conduit means and each equipped with a stem, a recessed tray mounted in said control knob opening and having a plurality of openings in the bottom thereof permitting the stems of said valves to extend therethrough, a control knob on each of said stems and positioned within said tray below said top wall, at least one of the side walls of said tray having air port means therein, said conduit means being equipped with openings for the entrance of primary combustion air below said air port means, the tray thus being interposed between said control knobs and said burners with the remainder of said casing being substantially imperforate except for an opening for supplying gas to said conduit means, whereby air for combustion passes about said knob and through the air port means in said tray in reaching said burners.

2. In a gas range, a box-like casing equipped with a top wall having a burner opening and a control knob opening therein, gas supply conduit means mounted in said casing and terminating in a burner positioned in said burner opening, a control valve in said conduit means and equipped with a stem; a recessed tray mounted in

said control knob opening and having an opening in the bottom thereof permitting the stem of said valve to extend therethrough, a control knob on said stem and positioned within said tray below the said top wall, at least one of the side walls of said tray having air port means therein, said conduit means being equipped with openings for the entrance of primary combustion air below said air port means, the tray thus being interposed between said control knob and said burner, with the remainder of said casing being substantially imperforate except for an opening for supplying gas to said conduit means, whereby air for combustion passes about said knob and through the air port means in said tray in reaching said burner.

3. In a top burner gas range unit, a box-like casing, a plurality of burner openings in the top wall of said casing, a gas burner positioned in each of said top wall burner openings, gas supply conduit means mounted in said casing and communicating with each of said burners, said gas supply conduit means being equipped with openings for the entrance of primary combustion air, a stem-equipped control valve for each burner in said gas supply conduit means for regulating the flames issuing from said burners, an additional opening in the top wall providing means for mounting a recessed tray, a recessed tray positioned in said additional opening and having openings in the bottom wall thereof, the stems of said valves extending through said tray bottom wall openings, control knobs on said stems, and air vent means in at least some of the walls of said recessed tray, the remainder of said casing being substantially closed except for an opening for said gas supply conduit means to enter said casing, said tray being interposed between said control knobs and said gas supply conduit means openings, whereby combustion air for said burners entering said casing through said air vent means necessarily flows about said control knobs to cool the same.

4. The structure of claim 3 in which said additional opening is adjacent one side of said casing whereby said

casing may be oriented in a counter top to position said control valves adjacent the front edge of a counter.

5. In a top burner gas range for counter mounting, or the like, a generally box-like casing having top, bottom and side walls integrated to prevent entrance of air into said casing except through openings provided in said walls, an opening in one of said walls other than said top wall, a gas conduit extending through said opening and attached to the interior of said casing, said conduit carrying a burner at its inner end with said burner being positioned below said top wall, an enlarged opening in said top wall about said burner, a valve in said conduit adjacent a side wall of said casing, and primary combustion air openings in said conduit adjacent said valve, said valve being equipped with an upwardly-extending stem, a depressed well portion in said top wall, said stem extending through an opening in said depressed well portion and equipped with a knob substantially below said top wall and in said well portion, and a plurality of air entrance openings in said well portion about said knob, said air entrance openings providing flow passages for combustion air entering said casing.

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