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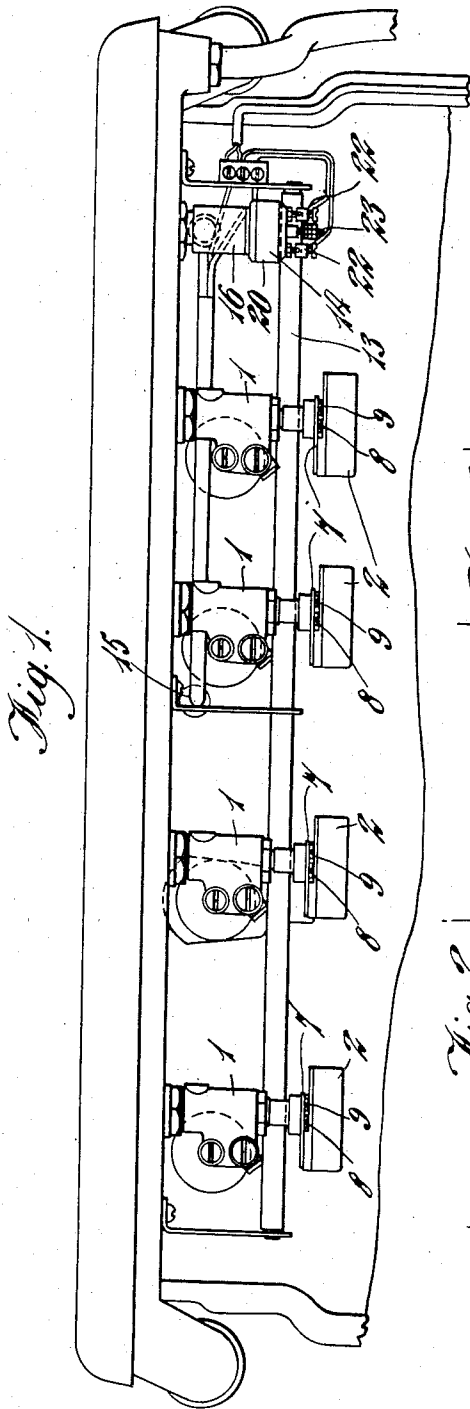
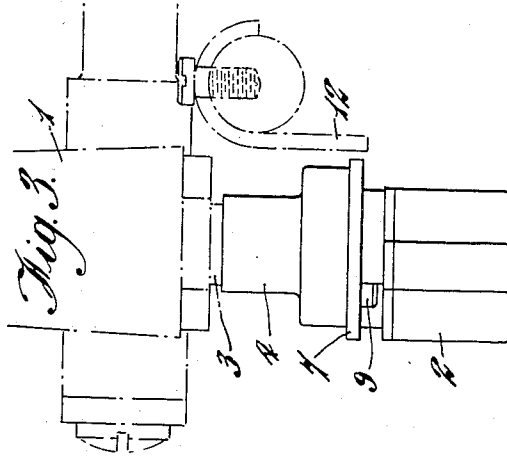
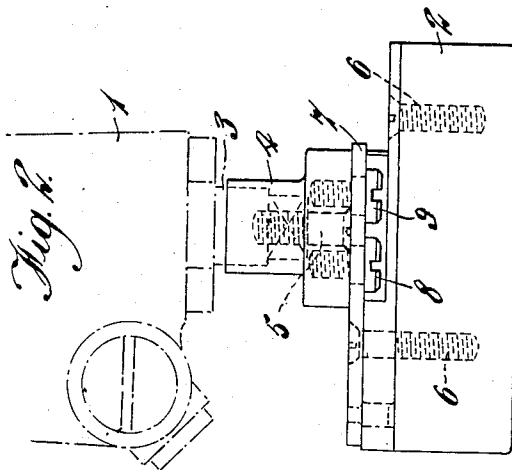
B. G. HORSTMANN

2,146,479

GAS BURNER IGNITING APPARATUS

Filed Sept. 27, 1937

2 Sheets-Sheet 1



INVENTOR
B. G. HORSTMANN

By *D. T. Walch*
Att'y

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B. G. HORSTMANN

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Fig. 4.

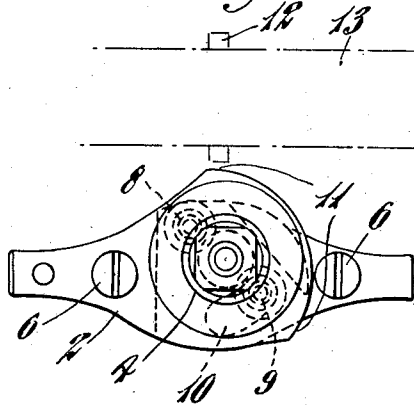


Fig. 5.

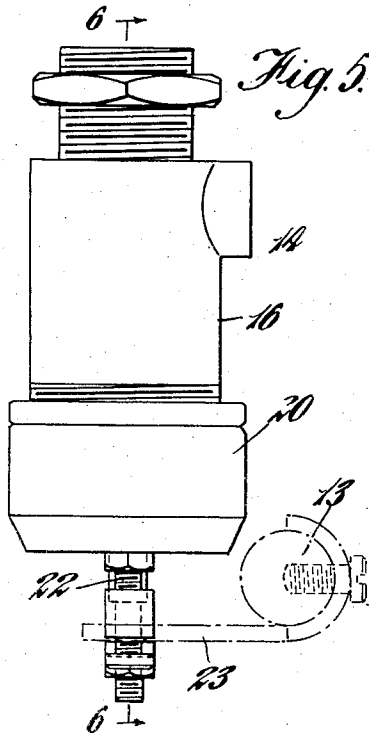
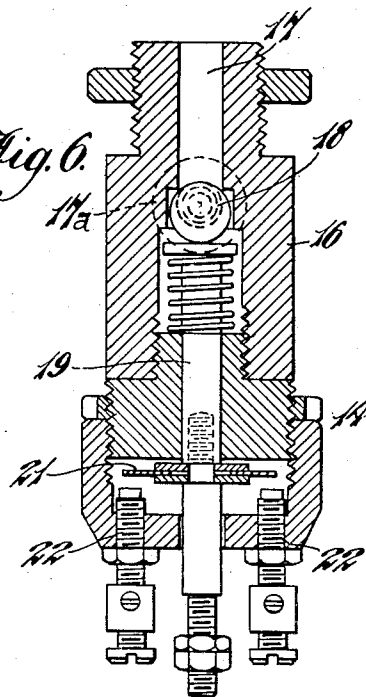


Fig. 6.



INVENTOR
B. G. HORSTMANN

By D. P. Wachsmuth *Att'y*

UNITED STATES PATENT OFFICE

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GAS BURNER IGNITING APPARATUS

Bevan Graham Horstmann, Bath, England

Application September 27, 1937, Serial No. 166,006
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4 Claims. (Cl. 200—53)

This invention relates to apparatus for igniting gas burners or gas burning appliances such as gas cookers. The object of the invention is to provide reliable apparatus which will automatically light the gas whenever a gas tap is turned on.

According to the invention, the apparatus comprises a gas tap handle connected to the gas tap by a pin and slot or other lost motion connection which permits a limited preliminary movement of the handle without effect on the gas tap, an igniting device arranged to be turned on by the preliminary movement of the handle so as to bring the igniting device into action before the gas tap is turned on and a spring adapted to turn off the igniting device when the handle is released after turning on the gas, the lost motion connection between the gas tap and the gas tap handle permitting the spring to impart a return movement to the handle without turning off the gas.

According to a preferred form of the invention, the gas tap handle has a cam like part formed with an arcuate surface which can be moved from a position eccentric to the axis of rotation of the gas plug or rotatable member of a rotary gas tap to a position concentric therewith, the handle being mounted on a pivot fixed eccentrically to the aforesaid rotatable member or to a part fixed thereto, and the rocking movement of the handle on the said pivot being limited by a pin and slot or like device which permits a limited preliminary movement of the handle before the gas is turned on.

During the preliminary movement of the handle, the arcuate surface of the cam like member moves from a position eccentric to the axis of rotation of the gas plug to a position concentric therewith. The igniting device is operated by an arm or other member to which movement is imparted by the arcuate surface of the cam like member during the preliminary movement of the handle. During the action of turning on the gas tap, the said arm or other member is unaffected since the arcuate surface of the cam like member is now concentric with the axis of rotation of the gas plug. On release of the handle however, the aforesaid arm or other member can be returned to its original position by the action of a suitable control spring, the arcuate surface of the cam like member being restored to its original eccentric position without turning the gas plug.

A preferred form of the invention will now be

described with reference to the accompanying drawings in which:—

Figure 1 is a front elevation of the upper part of a domestic gas cooker fitted with igniting apparatus embodying the invention;

Figure 2 is an enlarged front elevation of one of the gas tap handles shown in Figure 1;

Figure 3 is a side elevation of the same gas tap handle;

Figure 4 is a plan thereof;

Figure 5 is an enlarged side elevation of the gas switch shown in Figure 1; and

Figure 6 is a section on the line 6—6 of Figure 5.

In the drawings, the reference numeral 1 is applied to the body of each of the gas taps controlling the supply of gas to the several burners provided beneath the hot plate of the stove. Each of these gas taps is operated by a handle 2 secured to the plug 3 of the gas tap by means of a sleeve 4 which is pushed over the squared end of the gas plug and secured thereto by means of a screw 5 (see Figure 2).

The main body of the handle 2 is secured by means of screws 6 to a cam plate 7 which is attached to the sleeve 4 by means of two screws 8 and 9. The screw 8 constitutes a pivot which is fixed to the sleeve 4 at a point spaced from the axis of rotation of the gas plug and the screw 9 constitutes a stop which limits the pivotal movement of the handle about the screws, the cam plate 7 being formed with an arcuate slot 10 arranged so that the handle 2 and cam plate 7 can turn about the screw 8 through an angle of about 45°, this movement being limited by the engagement of the screw 9 with the ends of the slot 10.

The cam plate 7 has an arcuate edge 11 and is so formed that, when the handle is turned in an anti-clockwise direction (Figure 4) about the screw 8 to the full extent permitted by the slot 10, the said arcuate edge is brought to a position concentric with the axis of rotation of the gas plug. Consequently when the handle is turned in the opposite direction the arcuate edge 11 assumes a position eccentric to the axis of rotation of the gas plug as clearly shown in Figure 4.

Each of the cam plates 7 is adapted to actuate a lever arm 12 fixed to a rocker shaft 13, which extends across the front of the gas cooker as shown in Figure 1 so that it can be actuated by any of the gas tap handles 2, there being a separate lever arm 12 fixed to the rocker shaft in position to be actuated by the cam plate 7 of each of the handles 2.

The rocker shaft 13 operates a combined pilot valve and switch 14 (Figures 1, 5 and 6) which is common to all the burners controlled by the several gas taps 1. Two or more pilot jets ignited by a common electric igniting device may conveniently be heated at 15 (Figure 1), the nozzles of the pilot jet head being arranged to produce long jets capable of igniting any or all of the burners. Any other convenient arrangement of pilot jets and electrical igniting device or devices may be adopted so that when the igniting device or devices is or are energized and the pilot jets are supplied with gas all the main burners to which gas is supplied will be ignited.

The combined pilot valve and switch 14 comprises a casing 16 having a gas inlet 17 and a gas outlet 17a which supplies all the pilot jets for igniting the several burners controlled by the taps 1. The flow of gas is controlled by a ball valve 18 operated by a spring-pressed plunger 19 which normally holds the valve 18 closed against its seat so as to prevent gas from entering the casing 16. The plunger 19 passes through a switch casing 20 mounted on the casing 16 and a bridge piece 21 fixed to the plunger is arranged so that movement of the plunger in the direction to open the valve 18 causes the bridge piece 21 to bridge two contacts 22 fixed in the switch casing 20. The contacts 22 are connected to the electric igniting device or devices and to a battery or other current supply in such a way that the igniting device or devices is or are energized with the contacts 22 are bridged by the piece 21.

The plunger 19 is coupled to the rocker shaft 13 by means of a lever arm 23 fixed to the rocker shaft and attached at its free end to the end of the plunger in such a way that actuation of the rocker shaft 13 causes the plunger 19 to be moved against the action of its control spring so as to open the valve 18 and to bridge the contacts 22.

The operation is as follows:—

When any one of the handles 2 is turned for the purpose of turning on one of the gas taps 1, a limited preliminary turning movement of the handle about the pivot screw 8 occurs, which is without effect upon the gas tap. During this preliminary turning movement of the handle, the arcuate edge 11 of the cam plate 7, moves from the eccentric position shown in Figure 4 to the concentric position hereinbefore referred to (the turning-on movement being anti-clockwise as seen in Figure 4) and in this movement the edge 11 of the cam plate engages the lever arm 12 and rocks the shaft 13, thereby moving the plunger 19 of the combined pilot valve and switch so as to open the valve 18 and bridge the contacts 21. In this way gas is supplied to the pilot jets and the electrical igniting device or devices is or are energized so that the pilot jets are ignited.

The preliminary turning movement of the handle 2 about the pivot screw 8 is limited by the slot 10 to an angle of about 45° so that when the pilot jets have been ignited in the manner just described, further rotation of the handle causes the gas tap 1 to be turned so as to turn on the gas to the main burner. During the action of turning on the gas tap 1 the rocker shaft 13 receives no further movement since the arcuate edge 11 of the cam plate 7 is now concentric with the axis of rotation of the gas plug. On release of the handle, however,

the plunger 19 is returned to its original position by the action of its control spring, the pressure of the lever arm 12 on the arcuate edge 11 of the cam plate 7 causing the handle 2 to turn backwards about the pivot screw 8 without turning the gas plug. The pilot jets and igniting device or devices are thus automatically turned off when the handle 2 is released after the gas has been ignited at the main burner.

It will be obvious that each of the several handles 2 will have the same action so that the igniting device is operated automatically whenever any of the gas taps are turned on.

I claim:—

1. Gas burner igniter means including, in combination, a plurality of rotatable main gas supply valves, a combined pilot valve and igniter switch device, an actuator common to all of the supply valves and connected to said combined device, spring means for normally closing the pilot valve and keeping the switch open, and means associated with each supply valve for selectively engaging said actuator, said means including a rotatable supply valve actuating member, a handle, a pivotal connection between said member and said handle, said pivotal connection being eccentric to the axis of rotation of said member, stop means limiting the rotation of said handle relative to said member, a cam fixed to said handle, said cam having an arcuate edge and being positioned so that said arcuate edge is concentric with the axis of rotation of the valve actuating member when the handle is turned to the limit of its movement relative to the valve actuating member in the direction for turning on the valve, said cam in moving to bring its arcuate edge concentric with the axis of rotation of the valve serving to operate said actuator to open the pilot valve and close the igniter switch.

2. Gas burner igniter means including, in combination, a plurality of main gas supply valves, a combined pilot valve and igniter switch device including a spring pressed plunger for normally closing the valve and maintaining the switch open, an actuator common to all of the supply valves connected with said plunger and controlled by its spring, and means associated with each supply valve for selectively engaging said actuator, said means including a sleeve fitted to the supply valve, a handle, a cam plate having a slot and fitted to the handle, a pivot for eccentrically securing the cam plate to the sleeve, a stop member carried by the sleeve and operating in said slot, said cam plate being rotatable by the handle to the limit afforded by said slot to push the said actuator against the tension of the spring pressed plunger to thereby open the pilot valve and close the igniter switch, said cam being such that the continued movement of the handle to fully open the supply valve does not move the actuator, and said handle and cam when released being returned to normal position by the spring tension imposed on the actuator by said plunger.

3. Gas burner igniter means including, in combination, a plurality of main gas supply valves, a combined pilot valve and igniter switch device including a spring pressed plunger for normally closing the valve and maintaining the switch open, an actuator common to all of the supply valves connected with said plunger and controlled by its spring, and means associated with each supply valve for selectively engaging said actuator, said means including a rotatable valve-ac-

tuating member, a gas tap handle, a pivotal connection between said member and said handle said pivotal connection being eccentric to the axis of rotation of said member, stop means limiting the rotation of said handle relatively to said member, a cam fixed to said handle said cam having an arcuate edge and being positioned so that said arcuate edge is concentric with the axis of rotation of the valve actuating member when the handle is turned to the limit of its movement relative to the valve-actuating member in the

direction for turning on the valve, the said spring controlled plunger tending to move said actuator towards the axis of rotation of said valve actuating member and into engagement with said cam-like part.

4. A valve-operated igniting device according to claim 3, wherein said rotatable valve-actuating member is fixed to said gas supply valve and said gas tap handle is mounted directly on said rotatable valve-actuating member.

BEVAN GRAHAM HORSTMANN.