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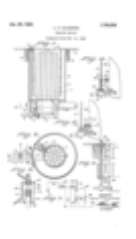
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Heating device

US 1700559 A

ABSTRACT [available in](#)

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Publication number	US1700559 A
Publication type	Grant
Publication date	Jan 29, 1929
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Inventors	Clausing Louis F
Original Assignee	Royal Metal Works
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[Referenced by \(1\)](#), [Classifications \(13\)](#)

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DESCRIPTION (OCR text may contain errors)

Jan. 29, 1929. 1,700,559

L. F. CLAUSING HEATING DEVICE Original Filed NOV. 10, 1923 INVENTOR 2 laws FCMasM a ATTOR N EY Patented Jan. 29, 1929.

UNITED STATES PATENT OFFICE.

LOUIS F. CLAUSING, OF BURLINGAME, CALIFORNIA, ASSIGNOR TO ROYAL METAL WORKS, A COPARTNERSHIP CONSISTING OF LOUIS F. CLAUSING AND MAX SCHWARTZ, OF SAN FRANCISCO, CALIFORNIA.

CLAIMS [available in](#)

' HEATING DEVICE.

Original application filed November 10, 1923, Serial No. 674,096. Divided and this application filed April 8, 1925. Serial No. 21,628.

The present invention relates to improvements in heaters and has particular reference to control means for a gas heater having electrical ignition means, the present application being a division of the co-pending application Serial No. 674,096, filed November 10th, 1923.

The principal object of the present invention is to provide means for a common control of the valve of a gas heater and a spark plug mounted in operative proximity to the burner for igniting the gas.

It is particularly proposed in the present invention to provide an operating element for the valve by means of which the latter may be opened and closed and means in connection therewith for closing the switch when the valve is open, the latter means being arranged to automatically open the switch after the object of igniting the gas has been attained.

It is further proposed in the present invention to provide means whereby a high tension current may be used for igniting the gas.

Further objects and advantages of my device will appear as the specification proceeds.

The preferred form of my invention is illustrated in the accompanying drawing, in which Figure 1' shows a vertical section of my heater having the common control for the gas valve and the electrical switch associated therewith. I I Figure 2 a horizontal section taken along line IIII of Figure 1.

Figure 3 a horizontal section through the switch used in the device shown in Figure 1.

Figure 4 a perspective detail View illustrating a modified common control for the valve and the switch.

Figure 5 a perspective view illustrating another modification of the Common control..

My heater 1 is fully described in the co-

pending application previously referred to and comprises in its principal features a rectangular box 2 adapted to be installed in the floor 3 of a room and to be supported on two adjacent joists 4 with a register 6 presented on top of the box. A radiator 5 which is more particularly described in the co-pending application is disposed centrally relative to the box/and. a burner 7 is arranged near the bottom end thereof which latter communicates with a gas pipe 8, the port area of which may be controlled by a suitable valve 9. The latter may be of any suitable make and terminates in a vertically presented valve stem 11 formed with an angular socket 12 in the top thereof adapted to receive the angular lower end of an

operating element 13 extending upwardly through the bottom 14.- of the box 2 into a perforation 1.6 in the register 6 and adapted to be manipulated by means of a key 17 The bottom end of the operating element 13 which extends into the socket 12 is made of the same angular cross-section as the socket 12 but slightly smaller so as to allow of limited play of the operating element relative to the socket.

The revolving motion of the valve stem 11 is limited by means of a small projection 18 striking a stop 19 when the valve is fully open.

In operative proximity to the burner 7 there is mounted a spark plug 21 adapted to ignite the gas when a spark is caused to urnp from one of its electrodes 22 to the other elec trode 23. The spark plug forms part of a high tension circuit 22, the latter including the secondary 23 of an induction coil, the primary 24 of which is connected at one end through the wire 26 and the switch 27 with one side of the battery 28 while the other end is connected through the wire 29 with a vibrating armature 31 which latter intermittently makes contact with the wire 32 connecting with the other side of the battery 28.

The switch used in this arrangement is illustrated in Figure 3 and comprises a plunger 33 slidable in the cylinder 34 mounted in the box 36, the plunger connecting through a stem 37 with one contact 38 bearing on the end 39 of the cylinder 34 with a spring 11 tending to force the contact 'upon its seat. Mounted oppositely the contact is a stationary contact 42 and the-m0vable contact 38 fa u may be engaged with the stationary contact -12 for closing a. circuit by depressing the plunger 33 against the opposition of the spring -11. The plunger may be depressed by meansot a short arm 44, extending from the operating element 13 when the latter is manipulated for closing the valve 9.

The device thus far described operates as follows:

To open the valve 9, the operating element 13 is turned by means of the key 17 and just before reaching the full open position, the arm let engages with the plunger 33 and forces the contact 38 upon the contact 12 whereby the primary circuit is closed and a SJEI'lli caused to jump the gap between the two electrodes 22 and 23 of the spark plug 21. When the operator releases the operating member 13 by withdrawing his key, the spring 41 forces the plunger 33 outwardly and'this motion does not involve a closing movement of the valve 9 due to the fact that the operating element 13 engages the socket 12 of the valve stem with a certain amount of play so that the switch may open due to the tension of the spring - 11 without affecting the position of the valve.

In Figure a is shown a modified form of common control for the valve and the spark plug. In this form, which is illustrated in the drawing of the co-pending application, the switch comprises a stationary contact 46 mounted in a bracket 17 secured to the radiator l8 and a movable contact 49 mounted on the arm lat of the operating member 13.

- A spring 51 encircles the operating element 13 and is secured with one end on the arm 41, as shown at 52, while its other end is fastened to the valve stem 11, as shown at 53. The spring 51 is sufficiently strong to normally prevent play

between the valve stem 11 and the operating element 13 until the projection 18 of the valve stem strikes the stop 19. When this occurs the contact 49 on the arm 11 is still out of engagement with the stationary contact 46 but the fact that the operating element 13 has a certain amount of play in the socket of the valve stem 11 allows the operating element to be turned further against the resistance of the spring 51 to establish engagement between the two contacts, the spring immediately disengaging the movable contact from the stationary contact as soon as the operating element 13 is released by the operator.

A still different form by which the same object may be accomplished is shown in Figure 5 in which the stationary contact is formed by the bracket 54: secured to the radiator 18 and the movable contact by a spring 56 secured to the operating element 13 as shown at 57 and extending from the latter in such a manner that when the operating element is turned the free end 58 of the spring 56 strikes a stop 59 which, however, allows the central portion 61 of the spring to be forced still further so as to come in contact with the stationary contact 54, the tension of the spring 56 effecting disengagement as soon as the operating element 13 is released by the manipulator.

In the form shown in Figure 6, a slightly different scheme is followed:

A sleeve 71 is arranged around the operating element 13 and is supported relative to the operating element by means of a spring 72 connecting an external collar 73 on the operating element with an internal shoulder 74 in the sleeve. The spring is arranged to normally hold the sleeve in such a position that its upper end is almost flush with the upper end of the operating element 13. To manipulate the operating element it is required that a key 76 be slipped over its upper end and this key can get a sufficient hold for operating the element 13 only after the sleeve 71 is depressed against the opposition of the spring 72. The sleeve constitutes the movable contact of the switch while a stationary contact 77 is mounted on a bracket 78 in operative proximity to the lower end of the sleeve so that when the latter is depressed by the insertion of the key, the two contacts engage for closing the circuit.

I claim:

1. In a heater of the character described, a gas burner, a control valve for the same formed with an angular socket in the stem thereof, an operating element for the valve extending into the socket with limited play in said socket and having spring means associated therewith opposing such play, electrical ignition means for the gas including an electrical circuit and a switch for the same and means allowing the operating element to close the switch when the same is manipulated for opening the valve, the spring means serving to move the operating element out of the switch closing position when the operating element is released.
2. In combination with a gas heater having a gas supply valve, an electric ignition device adapted to light the heater, a switch for controlling the current to said ignition device, spring means tending to force said switch open, a loosely fitting wrench for operating said valve and having a projection adapted to force the switch closed when the wrench is turned to

open the valve; said wrench being a loose fit to provide play permissingsaid spring to open the switch when the wrench is released without moving the valve.

LOUIS F. CLAUSING.

REFERENCED BY

Citing Patent	Filing date	Publication date	Applicant	Title
US4371764 *	May 28, 1981	Feb 1, 1983	Brown Stove Works, Inc.	Ignition circuit deenergizing spring for gas appliance valve-switch

* Cited by examiner

CLASSIFICATIONS

U.S. Classification	431/256 , 361/263 , 126/116.00R
International Classification	F24C3/10 , F24C3/00 , H01H3/02 , F24C3/12
Cooperative Classification	F24C3/10 , F24C3/12 , H01H3/0206
European Classification	F24C3/10 , F24C3/12 , H01H3/02B

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