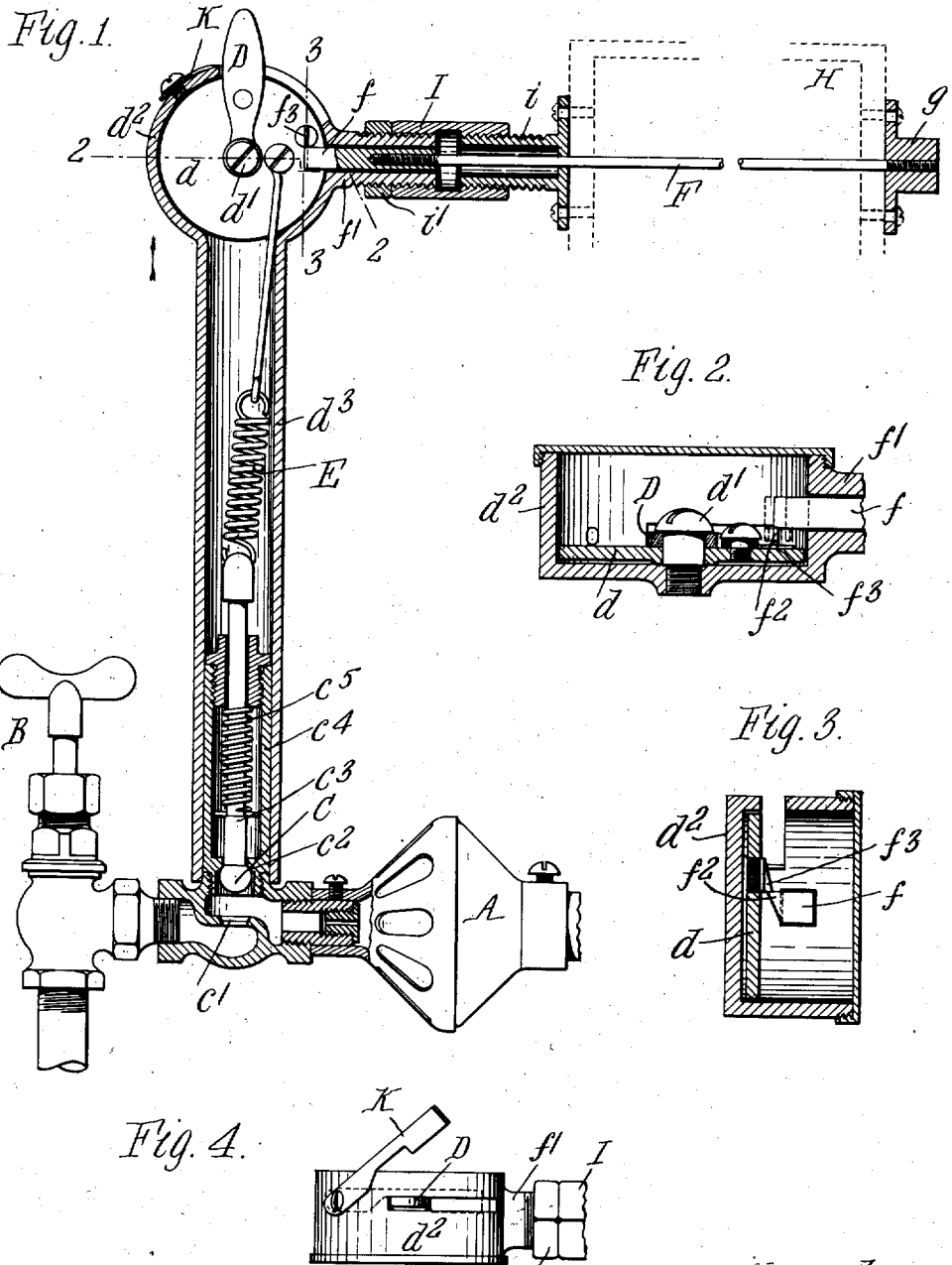


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THERMOSTATIC CUT-OFF DEVICE FOR GAS BURNERS.
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Patented Apr. 11, 1911.



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UNITED STATES PATENT OFFICE.

JULIUS W. PEPLINSKI, OF ERIE, PENNSYLVANIA.

THERMOSTATIC CUT-OFF DEVICE FOR GAS-BURNERS.

989,188.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed February 15, 1909. Serial No. 477,854.

To all whom it may concern:

Be it known that I, JULIUS W. PEPLINSKI, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented a new and useful Improvement in Thermostatic Cut-Off Devices for Gas-Burners, of which the following is a specification.

This invention relates to that type of cut-off devices for gas burners which embody a thermostat that is influenced by the heat produced by said burner and causes the gas to be shut off in the event of the burner flame being extinguished, or of an unforeseen abnormal change in the temperature affecting the thermostat.

The primary object of the invention is to produce an efficient thermostatic cut-off device of simple, practical and inexpensive construction, which can be readily applied, and which will shut off the gas to the burner in the event either of the burner flame being extinguished from any cause or of a change in the gas pressure such as to abnormally increase the heat produced by the burner.

Other objects of the invention are to provide a cut-off valve of novel construction which positively prevents the leakage of gas around the valve stem in both the open and closed positions of the valve without the use of a stuffing box for the valve stem, so that the valve will move easily and but little power is required to operate it; and also to improve cut-off devices for the purpose stated in the respects hereinafter described and set forth in the claims.

In the accompanying drawings: Figure 1 is a sectional elevation of a thermostatic cut-off device embodying the invention. Fig. 2 is a sectional plan view thereof, on an enlarged scale, in line 2—2, Fig. 1, looking upwardly as indicated by the arrow. Fig. 3 is a transverse sectional elevation thereof, on an enlarged scale, in line 3—3, Fig. 1. Fig. 4 is a fragmentary plan view thereof.

Like letters of reference refer to like parts in the several figures.

The cut-off device shown in the drawings is intended for application to gas stoves, but the device is not restricted to this use and with suitable modification in the form and dimensions of the parts the device can be used for illuminating burners or for burners for gas stoves and heaters of various sorts.

A represents a stove burner of ordinary construction and B an ordinary hand cock or valve for controlling the flow of gas to the burner. Between the burner A and valve B is a cut-off valve C which is controlled automatically by a thermostat and is preferably of the following construction. This valve is of the globe type, but the casing thereof has, in addition to the usual seat c' on which the valve is held to shut off the gas, a second seat c^2 which surrounds the hole through which the valve stem or rod c^3 passes and on which the valve is held when open to prevent the escape of gas from the casing through the valve stem hole. The valve stem c^3 extends loosely through a guide tube or tubular extension c^4 of the valve casing, and a spring c^5 is shown in the guide tube around the valve stem for closing the valve. When the valve is closed, or held on the seat c' by the spring c^5 , the gas of course cannot escape through the valve stem hole, and when the valve is open it is held against the second seat c^2 , which also prevents the escape of gas through the valve stem hole, so that the valve stem can be loose enough in the guide tube c^4 to work freely therein and yet there can be no leakage of gas through the valve stem hole. No packing around the valve stem, which would make the valve work hard, is required.

D represents a lever for opening the cut-off valve C. This lever is preferably secured to or formed with a circular disk d pivoted by a screw d' in a cylindrical casing d^2 at the end of a tubular support d^3 which is held on the guide tube c^4 for the stem of the cut-off valve. The lever disk d is connected to the stem of the cut-off valve C by a spring E located in the tubular support d^3 . This spring is stronger than the valve closing spring c^5 and acts, when the lever D is turned to the position shown in Fig. 1, to open the valve and hold it firmly against its second seat c^2 .

F represents an expansible or thermostat rod which is located so as to be affected by the heat produced by the flame from the burner A. As shown, this thermostat rod is secured at one end to or provided with a latch bolt f which is arranged to slide in a guide boss f' on the lever casing and is provided at its inner end with a lateral projection f^2 adapted to engage a cooperating stud f^3 projecting from the lever disk to hold the lever in position to retain the cut-off valve

open. The thermostat rod is fixed at its other or outer end to a fitting g which is secured to a part of the stove casing, indicated by dotted lines at H; or this end of the rod can be stationarily secured in any suitable way so that either the expansion or contraction of the rod, due to a change in the temperature affecting it, will move the latch projection f^2 out of engagement with the lever stud f^3 and release the lever. The thermostat rod preferably passes loosely through a screw-threaded nipple i which is secured on the stove casing H and is connected by a right and left hand threaded coupling sleeve I to the guide boss f' on the lever casing d^2 for adjusting the lever casing and the lever D relative to the thermostat rod. i' is a jam nut for holding the coupling sleeve when adjusted. Any other suitable mean for adjusting the lever D relative to the thermostat rod F could be employed.

In the use of the device the hand cock B is set to give the desired flame and the cut-off valve is opened by turning the lever D to the position shown in Fig. 1 and the gas is lighted. The lever D is retained in the open position until the thermostat rod is fully expanded by the heat from the flame and the coupling sleeve I is then adjusted so that the projection of the latch f will engage the stud f^3 of the lever D and hold the lever D with the cut-off valve open. If the flame is extinguished from any cause, the thermostat rod will contract and move the latch projection out of engagement with the lever stud, thus releasing the lever and permitting the cut-off valve to be closed by its spring c^5 to shut off the gas. On the other hand, if the heat is abnormally augmented, for example, by an increase in the gas pressure after the device has been adjusted, the consequent expansion of the thermostat rod will also move the latch projection f^2 out of engagement with the lever stud f^3 but in the opposite direction, and likewise release the lever and allow the cut-off valve to be closed by its spring c^5 . Thus the cut-off valve C will automatically close and prevent danger either from escaping gas if the flame is extinguished from any cause, or from too hot a fire if the gas pressure abnormally increases.

K represents a hook or catch which is pivoted to the lever casing d^2 and is adapted to be moved into engagement with the lever D to hold the cut-off valve open until the thermostat is set when first lighting the burner. After the device is properly adjusted this hook K is moved out of engagement with the lever, leaving the latter under the control of the thermostat F.

The device constructed as described is efficient and practical.

The thermostat simply actuates the latch which controls the valve and does not itself move the valve, so that the device can be set to operate with great exactness and to produce different desired results by different adjustments of the thermostat.

I claim as my invention:

1. The combination with a burner and a valve which controls the flow of fuel to the burner, of devices for closing the valve, means for locking said devices against action, and a thermostatic element subjected to heat from the burner and actuating said means to unlock said devices to close the valve with an abnormal increase or decrease in the temperature of the thermostatic element.

2. The combination with a burner and a valve which controls the flow of fuel to the burner, of a motor tending to close the valve, a latch for holding said valve open, and a thermostat element which is affected by the heat from the burner flame and devices controlled by the thermostatic element and operate said latch to release said valve by either the expansion or contraction of said element due to either an abnormal increase or decrease in the temperature affecting the thermostat element, substantially as set forth.

3. The combination with a burner, and a valve which controls the flow of fuel to the burner, of means for opening and closing said valve, a latch which coöperates with said means to hold the valve open, and a thermostat element which is affected by the heat from the burner flame and operates said latch to release said valve by either an abnormal expansion or contraction of said element incident to an abnormal increase or decrease in the temperature of the element, substantially as set forth.

4. The combination with a burner, of a cut-off valve therefor, a casing having two seats for said valve, a spring for closing said valve against one seat, a valve opening lever, a spring which connects said lever and valve and holds the valve against said other seat when open, a latch which coöperates with said lever to hold said valve open, and a thermostat element which is affected by the heat from the burner flame and releases said lever upon an abnormal change in the temperature affecting said element, substantially as set forth.

Witness my hand, this 10th day of February, 1909.

JULIUS W. PEPLINSKI.

Witnesses:

C. R. DENCH,
M. L. BLUM.