Jan. 9, 1923.

1,441,938.

H. B. MAYNARD, SR.

FUEL SAVING DEVICE FOR HEATERS.

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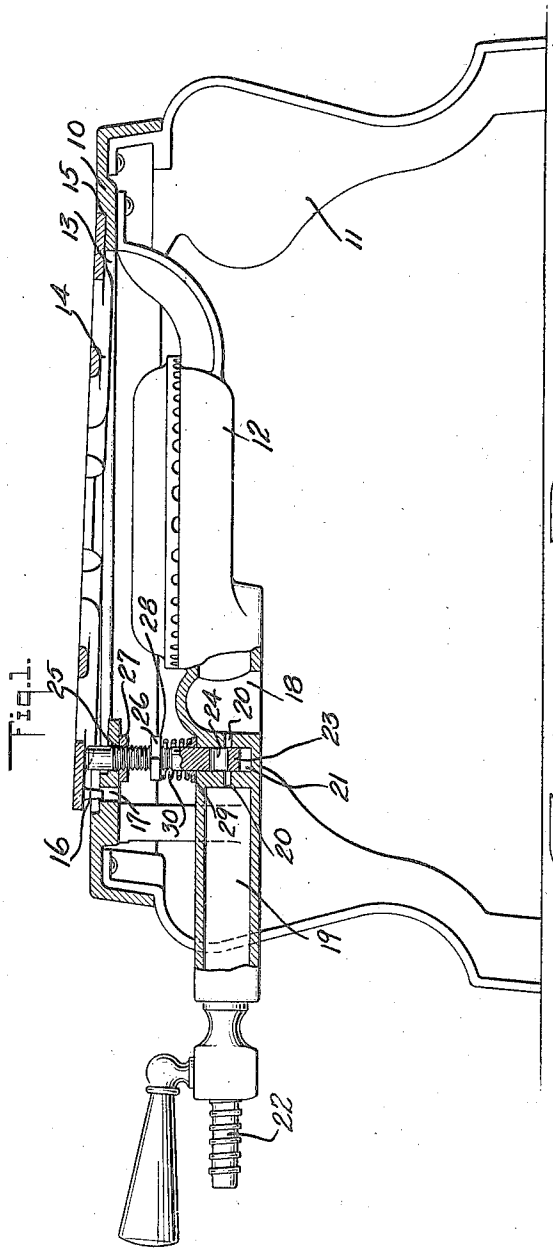


Fig. 1.

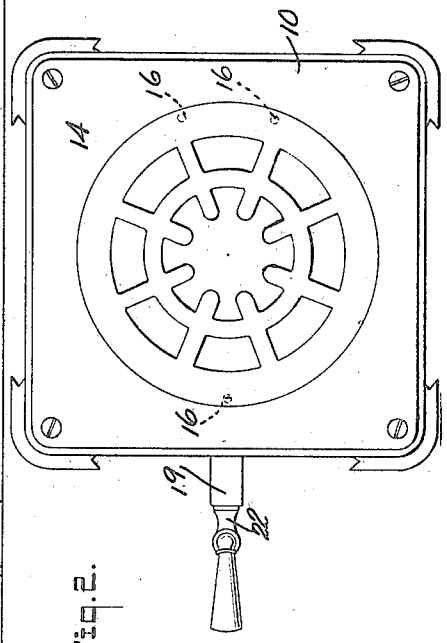


Fig. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

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FUEL-SAVING DEVICE FOR HEATERS.

Application filed November 21, 1921. Serial No. 516,630.

To all whom it may concern:

Be it known that I, HAROLD B. MAYNARD, Sr., a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Fuel-Saving Device for Heaters, of which the following is a full, clear, and exact description.

This invention has relation to a fuel saving device for heaters and has to do more specifically with a device of the character described for use in connection with gas heaters or stoves.

At the present time there is a considerable waste of fuel, especially in gas stoves or heaters when employed for cooking, ironing, or like purposes, due to the failure of the user to cut down the flow of the gas or fuel upon removal of the utensil, iron, or other similar articles from the stove. This failure is mainly due to the trouble incident to manually cutting down the flow of the gas and the possibility of turning the same too low.

It is therefore an object of the present invention to provide a means associated with the stove or heater which is operable by the weight of the utensil or other article to be heated when arranged on the stove, to effect the full flow of gas to the burner, which means is automatically operable upon removal of the article or utensil, to effect a substantial predetermined reduction in the flow of the gas to the burner whereby to overcome the above recited objections.

As a further object, the invention contemplates a device for controlling the flow of fuel to the burner of a heater or stove operable by the weight of the article to be heated, which device includes means of adjustment whereby the minimum flow of the fuel when the heater is not in active use may be regulated.

As a further object the invention aims to produce a device of the character described which is extremely simple in its construction, inexpensve to manufacture, and which is thoroughly reliable and highly efficient in its purpose.

With the above recited and other objects in view, the invention resides in the novel construction set forth in the following specification, particularly pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that the right is reserved to embodiments other than those actually illustrated herein to the full extent indicated by the general meaning of the terms in which the claims are expressed.

In the drawing—

Figure 1 is a sectional view through a gas heater or stove equipped with a regulating device constructed in accordance with the invention.

Fig. 2 is a plan view of the stove.

Referring to the drawings by characters of reference, 10 designates a stove top provided with supporting legs 11 depending therefrom and a burner 12 supported beneath the central aperture 13 in the top and over which aperture the usual burner plate 14 is arranged. The burner plate is loosely fitted within a recess 15 communicating with the aperture 13 and is retained against lateral displacement by depending guide lugs 16 received by the apertures 17 in the top 10. By this arrangement the burner plate 14 is capable of relative vertical movements with respect to the top 10. The burner 12 has communication with a mixing chamber 18 which in turn communicates with the fuel feed pipe 19 through the aligned apertures 20 in a valve chamber 21 interposed between the inner end of the fuel feed pipe 19 and the mixing chamber 18. The outer end of the fuel feed supply pipe 19 is provided with the usual valved nipple 22 which is attached to a suitable source of fuel supply. The controlling valve consists of a stem 23 having a transverse aperture 24 in the lower extremity thereof, which lower extremity is vertically adjustable in the valve chamber 21. The upper extremity of the stem 23 extends vertically from the valve chamber 21 and engages the under side of the forward edge of the burner plate immediately in rear of the foremost guide lug 16, the said upper extremity of the stem protruding through a guide opening 25 in the recessed portion of the top 10. The intermediate portion of the stem 23 is threaded as at 26 and has mounted thereon upper and lower nuts 27 and 28. A suitable packing ring 29 is arranged on the stem directly over the upper end of the valve chamber 21 and a coiled contractile spring 30 is interposed between the lower nut 28 and the packing ring to normally effect upward movement of the stem. The upper nut 27 constitutes an adjustable abutment for limiting the upward

movement of the stem under the action of the spring 30 by its coacting engagement with the under side of the recessed portion of the stove top 10. By properly regulating the upper nut 27, the engagement of the same with the under side of the stove top restricts the amount of fuel passing through the aligned apertures 20 and the transverse aperture 24 in the valve stem. At the same time the upper extremity of the stem under the action of the spring constitutes a means for normally elevating the forward end of the burner plate whereby upon the absence of an article on the burner plate said burner plate will be normally elevated.

In use and operation, when an article is placed on the burner plate the weight of the same will depress the stem against the action of the spring 30 thereby bringing the transverse aperture 24 in axial alignment with the aligned apertures 20 to permit an unrestricted flow of the fuel from the fuel feed pipe 19 to the mixing chamber and thence to the burner to permit a full flow or flame therefrom. When the article is removed from the burner plate it is obvious that the tension of the spring will automatically effect an upward movement of the stem and the burner plate to cause the apertured portion of the stem to partially restrict the flow of the fuel through the aligned apertures 20, thus cutting down the flame while the stove is not in actual use. When the tension of the spring 30 through continuous use is reduced, said tension may be increased by advancing the lower nut 28 toward the lower end of the stem. The upper nut 27 may be raised or lowered when desired for the purpose of increasing or decreasing the minimum flow of the fuel through the apertures to provide a regulating means.

I claim:

1. In a device of the character described, the combination with a gas stove or heater including a burner, a vertically movable burner plate thereover for supporting the article to be heated and a fuel supply, of a valve interposed between the burner intake and the fuel supply comprising a valve chamber having aligned apertures, a vertically movable stem having its lower end arranged within said valve chamber and its upper end engaging the under side of the burner plate, the lower end of said stem having an aperture designed to wholly register with the aligned apertures in the valve chamber when the stem is in its lowermost position, an intermediate threaded portion on said stem, an upper nut arranged on said threaded portion for adjustable engagement with the under side of the stove top whereby to limit the elevation of the stem to dispose the aperture in the stem in partial alignment with the aligned apertures in the valve chamber, a lower nut on the threaded portion of the stem, and a coiled contractile spring interposed between said nut and the upper end of the valve chamber.

2. A gas heater or stove comprising a burner having an intake pipe for connection with a source of fuel supply, a valve chamber in said intake valve having aligned apertures, a valve consisting of a stem having an apertured lower end fitted in the valve chamber and a threaded upper end extending above the valve chamber, a stove top having an aperture through which the upper end of the valve extends, a vertically movable burner plate on the stove top resting upon the upper end of the valve, a nut longitudinally adjustable on the threaded portion of the stem to provide an abutment engageable with the under side of the stove top, a second nut on the threaded portion of the stem, and a spring interposed between the second nut and the upper end of the valve chamber for normally effecting upward movement and abutting engagement of the first nut with the under side of the stove top, the said apertured lower end of the stem being adapted to partially register with the apertures in the valve chamber when the stem is thrust upwardly by the spring and adapted to wholly uncover the apertures in the valve chamber when lowered, as and for the purpose specified.

HAROLD B. MAYNARD, Sr.