

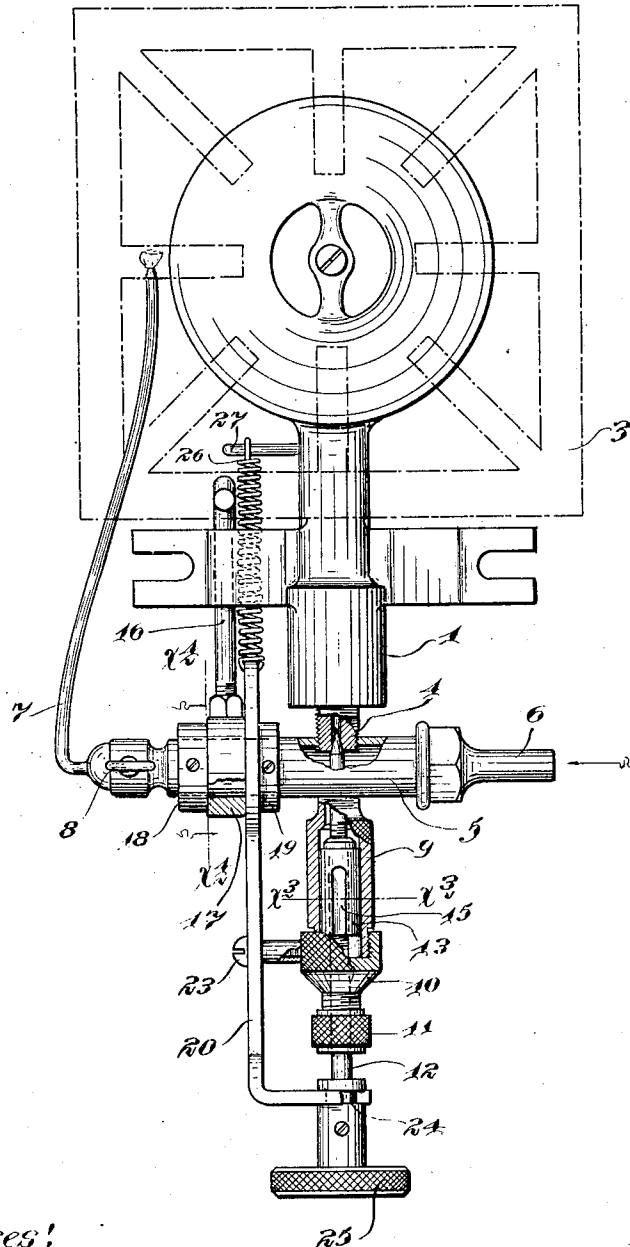
F. J. MADDEN.
 AUTOMATIC CUT-OFF VALVE FOR GAS BURNERS.
 APPLICATION FILED OCT. 2, 1911.

1,035,208.

Patented Aug. 13, 1912.

2 SHEETS—SHEET 1.

Fig. 1



Witnesses:

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 H. A. Hillgren

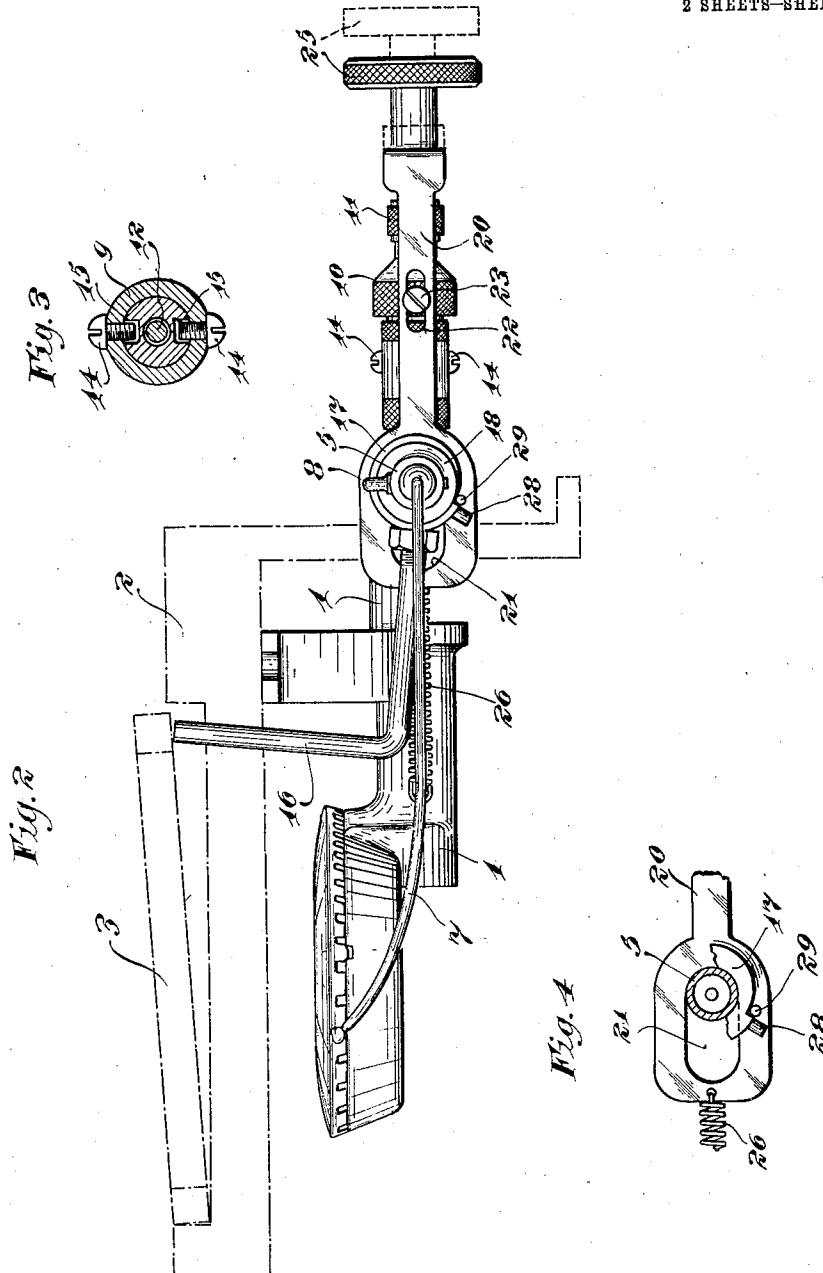
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UNITED STATES PATENT OFFICE.

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AUTOMATIC CUT-OFF VALVE FOR GAS-BURNERS.

1,035,208.

Specification of Letters Patent.

Patented Aug. 13, 1912.

Application filed October 2, 1911. Serial No. 652,245.

To all whom it may concern:

Be it known that I, FRANK J. MADDEN, (whose post-office address is Albert Lea, Minnesota,) a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Automatic Cut-Off Valves for Gas-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to burners for gas stoves and has for its object the provision of simple and highly efficient means whereby a relatively large flame will be burned only when there is a utensil or other article in position over the burner, and which, when said utensil or other article is removed, will cut down the flame to a minimum or to a size of flame only sufficient to serve as a lighter for the main burner.

Otherwise stated, the invention provides what may be designated as a "high-low burner", which adjusts the flame for the greatest economy and efficiency.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a plan view with some parts broken away, showing a gas burner with my improved automatic releaser or adjustment applied thereto; Fig. 2 is a side elevation of the parts shown in Fig. 1, some parts being shown diagrammatically by broken lines; Fig. 3 is a detail in transverse section taken on the line $x^3 x^3$ of Fig. 1; and, Fig. 4 is a detail in vertical section taken on the line $x^4 x^4$ of Fig. 1, some parts being broken away.

The numeral 1 indicates a gas burner of standard or ordinary construction such as is generally applied to gas stoves. In Fig. 2, a portion of the top of a gas stove to which the burner 1 is attached is indicated by the numeral 2, and in Figs. 1 and 2, the spider-like griddle over-lies the burner and is loosely set for vertical movements in a suitable seat in the top of the stove frame 2, as indicated by the numeral 3.

It may be here stated that one object of the present invention is to provide an automatic burner attachment that may be easily

applied to a gas burner of standard or ordinary construction. In the application of this attachment, a short sleeve 4, the inner end of which serves as a valve seat, is screwed into the outer end of the tubular stem of the burner 1. The intermediate portion of a transversely extended tube 5 is connected to the outer end of the sleeve 4, preferably by threaded engagement therewith. One end of the tube 5 is connected to a receiving nipple 6 to which a gas supply pipe, not shown, is adapted to be attached. The other end of said tube 5 is connected to a small gas tube 7, the end of which terminates close to one side of the burner 1 in position where it is adapted to serve as a pilot burner or lighter for the main gas burner. The supply of gas to the pilot light is adapted to be turned on and cut off, at will, by a small valve 8 shown as set in the adjacent end of the tube 5.

Secured to the intermediate portion of the tube 5, and axially alined with the coupling sleeve 4, is a guide sleeve 9, and screwed to the outer end of this guide sleeve 9 is a cap 10 provided with a stuffing box 11 at its outer end. The stem of a long needle valve 12 works through the stuffing box 11, through the cap 10 and through the sleeve 9, and its conical inner end normally closes the passage through the coupling sleeve 4 and thereby normally cuts off the supply of gas to the main burner 1.

A sleeve-like stop 13 is screw-threaded on the intermediate portion of the needle valve 12. This stop sleeve 13 is mounted, with freedom for endwise adjustments but is held against rotation, as shown, by one or more screws 14 screwed through the outer sleeve 9 with their inner ends working in grooves 15 of the said stop sleeve 13. The outer end of the stop sleeve 13 is engageable with the cap 10 to limit the opening movement of the needle valve 12; and, as is evident, the position into which said needle valve will be moved away from its seat in the sleeve 4 will depend upon the distance which the said stop sleeve 13 is normally set from the said cap 10. Hence, by adjustment of the said stop sleeve 13, the amount of gas that will be supplied to the main burner when the needle valve is moved into its open position, may be regulated at will.

For automatically opening the needle valve, or the valve employed to control the

supply of gas to the main burner, I provide connections preferably arranged as follows: The numeral 16 indicates a bent arm, the lower end of which is rigidly secured to a collar 17 pivotally mounted on the transverse tube 5, between collars 18 and 19 fixed on said tube. The free upper end of the arm 16 engages and supports one edge of the so-called "griddle" 3. The numeral 20 indicates a valve actuating bar provided with two longitudinally extended slots 21 and 22, the former of which embraces the tube 5 between the collars 17 and 19, and the latter of which embraces a retaining screw 23, shown as secured to the cap 10. The outer end of this bar 20 is laterally bent and forked and engages an annular groove 24 formed in the hub of an adjusting knob 25 secured to the extreme outer end of the needle valve 12. A coiled spring 26 attached to the inner end of the sliding bar 20 and, as shown, to an anchoring pin 27 on the burner 1, yieldingly throws the said bar 20 inward and normally holds the needle valve 12 set in the sleeve 4. The collar or hub 17 of the arms 16 is provided with a radially projecting pin or shoulder 28 that engages with a lateral projection 29 on the sliding bar 20, and thus normally causes the spring 26 to hold up the arm 16 and the griddle 3, as indicated in Fig. 2.

When a kettle or other cooking utensil or any other article—such, for instance, as an iron, is placed on the griddle 3, its weight will be sufficient to press the arm 16 downward against the tension of the spring 26, and thereby move the sliding bar 20 rearward, causing the latter to move the needle valve into an open position. As already indicated, the extent to which the said needle valve will be moved to an open position is limited by the engagement of the adjustable stop collar 13 with its cap 10, which latter is utilized as one of the coöperative stop elements. Obviously, there must be sufficient normal elevation given to the griddle 3 to provide for a maximum opening of the valve when the said griddle is pressed downward.

The so-called "griddle" 3, broadly considered, is a movable support for the cooking utensil or other utensil to be heated, and, hence, it should be understood that the term "griddle" as herein used, is used in this broad sense.

What I claim is:

1. The combination with a gas burner

and a vertically movable griddle, of a gas supply connection to said burner, a valve for controlling the supply of gas from said connection to said burner, a fixed stop and a coöperating adjustable stop movable with said valve for varying the opening movement of said valve, yielding means tending to close said valve, and a connection for opening said valve actuated by depression of said griddle.

2. The combination with a gas burner and a vertically movable griddle, of a conduit, a gas supply connection from said conduit leading to said burner, a yieldingly pressed endwise movable valve normally closing said conduit, an adjustable stop on said valve coöperating with a relatively fixed stop element to limit the movements of said valve, a slide movable endwise with the said valve which permits adjustments of the latter, a pivoted arm operative on said slide to move the same and said valve, endwise, the free end of said arm, normally engaging said griddle and a spring operative on the said parts to normally hold said valve closed and said arm and griddle uplified, substantially as described.

3. The combination with a gas burner and a vertically movable griddle, of gas supply connections including a coupling sleeve connected to said burner and a transverse tube intermediately connected to said sleeve, a guide sleeve connected to said transverse tube and alined with said coupling sleeve, a needle valve movable endwise through said guide sleeve and normally closing the conduit through said coupling sleeve, a stop sleeve having threaded engagement with said needle valve and movable endwise in said guiding sleeve but held against rotation, a cap on the end of said guide sleeve coöperating with said stop sleeve to adjustably limit the opening movements of said needle valve, a slide connected to said needle valve but permitting rotation of the latter, an arm pivoted on said transverse tube with its free end normally engaging and uplifting said griddle, and a spring operative on said slide and normally holding said needle valve in a closed position and said arm and griddle uplified, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK J. MADDEN.

Witnesses:

JOHN F. D. MEIGHEN,

OLIVER GORDEN.