

C. H. ERICKSON.
GAS BURNER,
APPLICATION FILED MAR. 5, 1912.

1,057,814.

Patented Apr. 1, 1913.

2 SHEETS—SHEET 1.

Fig. 1

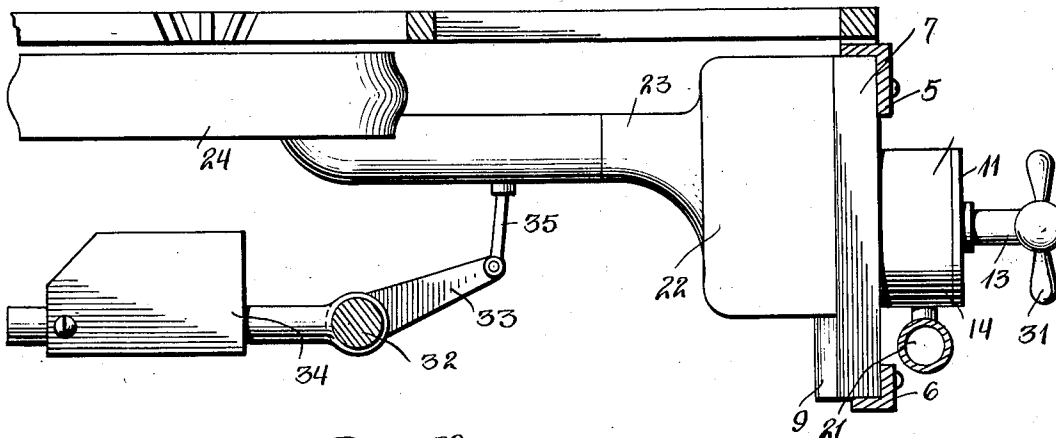


Fig. 2.

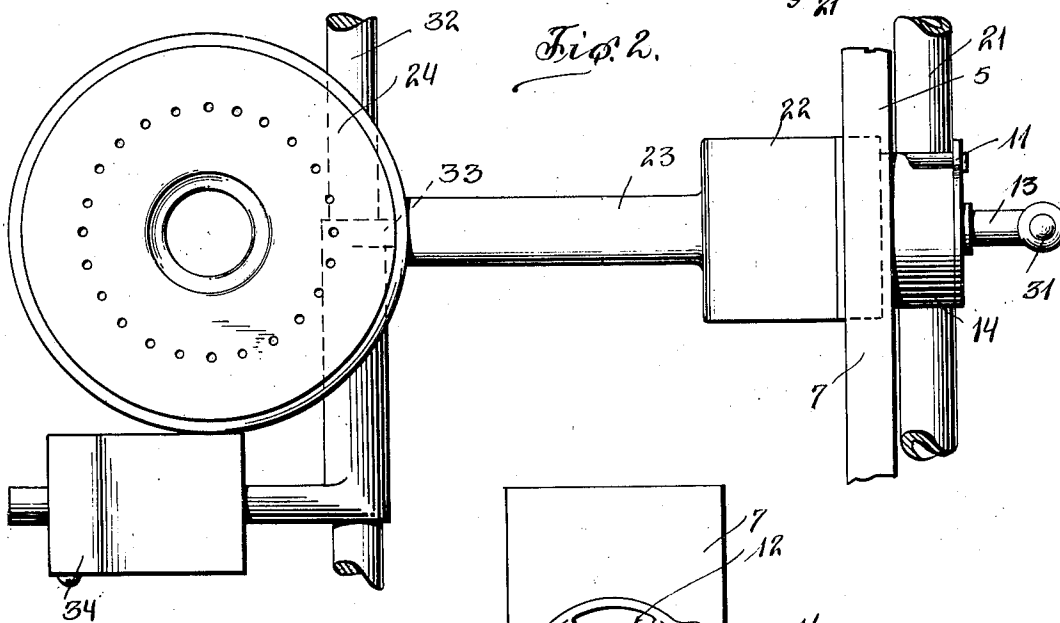
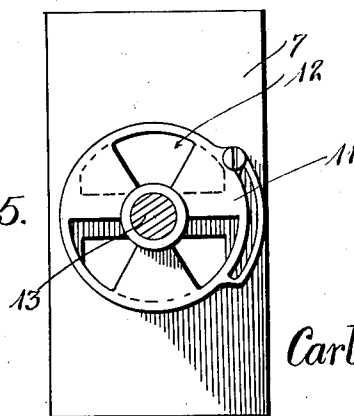


Fig. 5.



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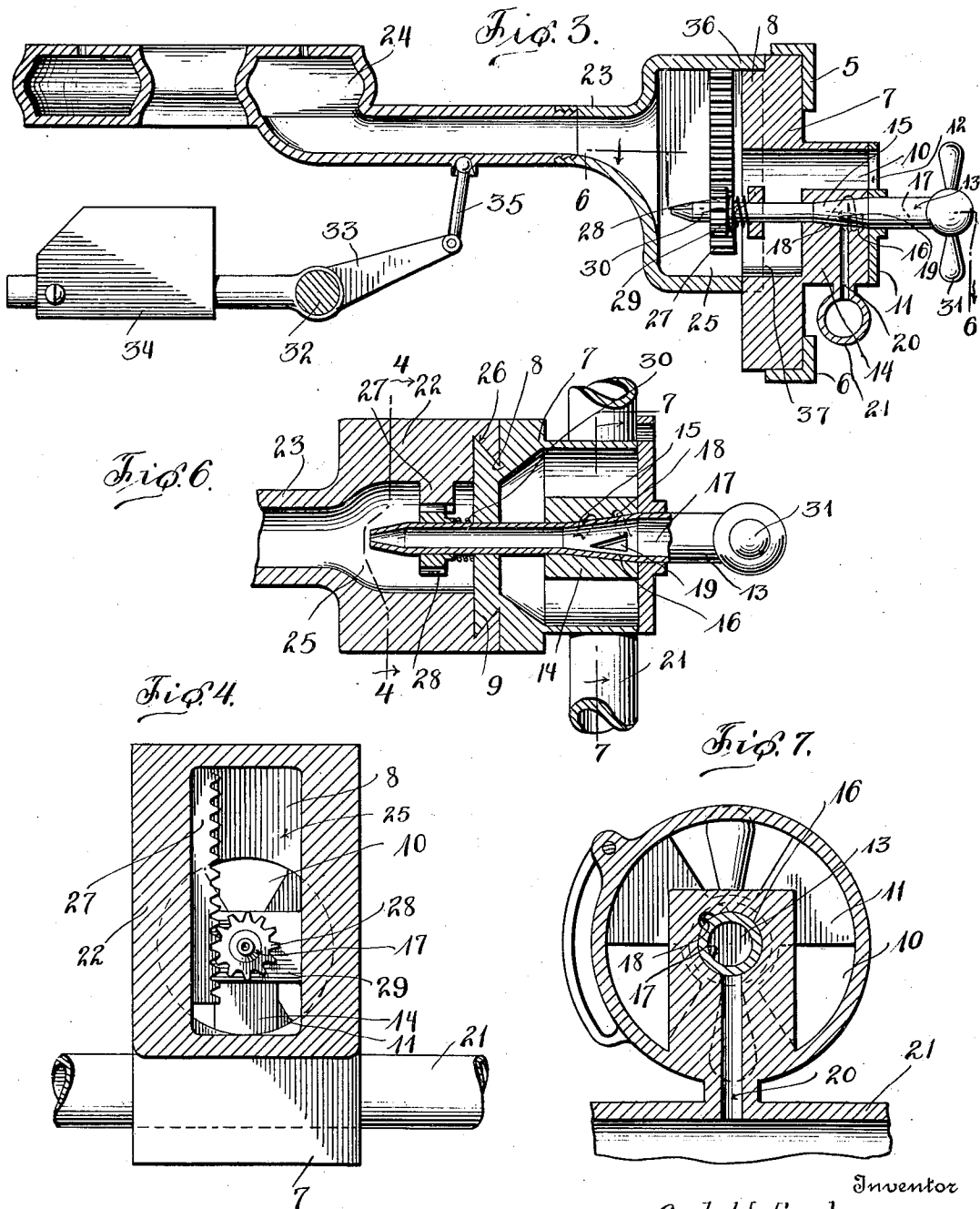
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UNITED STATES PATENT OFFICE.

CARL H. ERICKSON, OF DENVER, COLORADO.

GAS-BURNER.

1,057,814.

Specification of Letters Patent.

Patented Apr. 1, 1913.

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To all whom it may concern:

Be it known that I, CARL H. ERICKSON, a subject of the King of Sweden, residing at Denver, in the county of Denver and State of Colorado, have invented new and useful Improvements in Gas-Burners, of which the following is a specification.

The invention relates to gas burners and more particularly to the class of adjustable gas burners.

The primary object of the invention is the provision of a burner for use in gas stoves in which the flame therefrom may be brought into close relation to a cooking utensil irrespective of the height or density of the flame, thereby saving fuel as all of the heat from the flame can be directed to the utensil on the stove whether said flame be low or high.

Another object of the invention is the provision of a burner of this character which will be automatically shifted on regulating the fuel supply thereto so that on lowering the flame the said burner will be brought into close relation to a cooking utensil when placed upon a stove thereby enabling all of the heat from the flame to play directly on the utensil and on the raising of the flame the said burner will be retracted from the said cooking utensil so as to avoid the spreading of the flame thereby losing maximum heat from the same.

Another object of the invention is the provision of a burner of this character in which gas will be prevented from escaping and also that will allow the maximum heating qualities to be derived from the flame issuing from the burner with a minimized consumption of fuel.

A still further object of the invention is the provision of a gas burner of this character which is simple in construction, thoroughly reliable and efficient in operation and inexpensive in manufacture.

With these and other objects in view the invention consists in the construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In the drawings: Figure 1 is a fragmentary, vertical, sectional view through the gas stove showing the improved burner constructed in accordance with the invention in side elevation. Fig. 2 is a top plan view

thereof. Fig. 3 is a vertical, longitudinal, sectional view thereof. Fig. 4 is a sectional view on the line 4—4 of Fig. 6 looking in the direction of the arrow. Fig. 5 is an end elevation showing the air valve, the valve stem being shown in vertical section. Fig. 6 is a sectional view on the line 6—6 of Fig. 3. Fig. 7 is a sectional view on the line 7—7 of Fig. 6.

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawings by numerals, 5 and 6 designate the upper and lower front bars of a gas stove of any ordinary well-known construction to which is fixed the gas burner presently described.

The gas burner comprises a box-like body 7 formed at its inner end with a vertical elongated guide plate 8 having a dove-tail shaped guide tongue 9 vertically disposed on one face thereof while formed in the wall of the box-like body 7 at the outer side are a plurality of air inlet orifices 10 adapted to be opened and closed by means of a regulating disk 11 the same being formed with openings 12 adapted to register with the orifices 10 and is centrally mounted for rotation upon a valve stem 13 rotatably supported in a bearing 14 rising centrally within the body 7 from its bottom, the stem 13 being formed with a tapered portion 15 fitting within a correspondingly tapered seat 16 in the bearing 14 and this stem 13 is formed with a gas inlet bore 17 extending centrally through a greater portion of the length of the same and opening through the inner end thereof, the bore 17 being adapted for connection with the sinuous gas inlet channel 18 formed in the bearing 14 by means of a triangular-shaped opening 19 formed in the side wall of the stem 13, the said channel 18 being extended to provide a vertical lead vent 20 communicating with a gas supply pipe 21 adapted to be connected up with a gas main in any desirable manner. The triangular shaped opening in the stem 13 when brought into communication with the channel 18 will permit the gas to enter the bore 17, the channel 18 being supplied with gas through the vent 20 leading from the supply pipe 21. The gas in the bore 17 passes through the open inner end thereof into the mixing chamber of the burner.

Slidably engaged upon the guide plate 8

of the body 7 is a detachable hollow section 22 of the burner shank 23 carrying a perforated burner head 24 preferably of circular shape, although it may be of any other desirable shape and through which is emitted the fuel mixture to be burned, the section 22 being designed to form a mixing chamber 25 and is formed with a guide groove 26 correspondingly shaped to the tongue 9 for receiving the same, whereby the burner may be vertically adjusted on the guide plate 8 in a manner presently described. Formed in the mixing chamber 25 is a vertical rack bar 27 meshing with a rack pinion 28 fixed to the valve stem 13 the latter being also passed through a bridge piece 29 arranged interiorly of the hollow body 7 to provide an inner bearing for the said stem. Surrounding the stem 13 between the pinion 28 and the bridge piece 29 is a coiled expansion spring 30 which is designed to act upon the stem for holding the tapered portion 15 wedged in the correspondingly shaped seat 16 in the bearing 14 to avoid the possibility of leakage of gas when the stem is being turned to shut off from open position or vice versa. The outer free end of the stem is formed with a turning handle 31 whereby it may be manually turned for supplying fuel or to shut off the same from the burner, the inner discharge end of the stem 13 being projected into the mixing chamber 25 for the admission of gas therein for the commingling of the same with air admitted through the air inlet orifices 10 and opening 12 in the front wall of the body 7 and regulating disk 11, respectively for the proposed combustion of the supply to burner when lighted.

Stationarily mounted below the burner shank 23 is a shaft or rod 32 on which is journaled a rocking weight carrying arm 33 provided with an adjustable weight 34 at one side of the axis of the shaft or rod 32 while connected to the arm 33 at the opposite side of the axis of said shaft is a link 35 the same being also connected with the shank 23 of the burner and this weight 34 serves to balance the burner so as to permit the easy adjustment thereof on the turning of the stem 13 by hand, the shaft or rod 32 being supported in the stove in any suitable manner.

The section 22 at its elongated open end 36 communicates with a port 37 formed in the guide plate 8 of the body 7 so as to establish communication between the mixing chamber 25 and the said body 7 throughout the extent of adjustment of the burner vertically thereof, thereby permitting air to enter the mixing chamber 25 to be mixed with the gas when admitted thereto.

When the gas supply has been turned off from the burner the head 24 thereof will be positioned close to the top of the stove

so that when turning the stem 13 for the admission of gas to the burner head the latter will be retracted from the top of the stove and this movement is continuous until a full supply of gas is admitted thereto, thus it being seen when the burner is lighted and the flame is low the same will be in close relation to a cooking utensil upon the stove but when the flame is high the burner will be retracted therefrom to the required degree thus assuring maximum heat from the flame whether it be low or high, thereby minimizing the consumption of fuel when the burner is lighted. The inlet opening 19 when the burner is extinguished is out of register with the sinuous channel 18, thus shutting off the gas supply to the burner.

From the foregoing description, taken in connection with the drawings, it is thought that the construction and operation of the invention will be clearly understood, and therefore, a more extended explanation has been omitted.

What is claimed is:—

1. In a gas stove, a burner comprising a hollow body, a burner shank having a hollow section adjustably connected with said body, a hollow valve stem journaled in the said body and projected in the hollow section, and having inlet and outlet apertures, a rack depending within said hollow section, a pinion fixed to the stem and meshing with the rack for raising and lowering the burner on the turning of the said stem, and fluid conducting means adapted for communication with the inlet aperture in the stem on the turning of the latter for admitting fluid thereto.

2. In a gas stove, a burner comprising a hollow body, a burner shank having a hollow section adjustably connected with said body, a hollow valve stem journaled in the said body and projected in the hollow section, and having inlet and outlet apertures; a rack depending within said hollow section, a pinion fixed to the stem and meshing with the rack for raising and lowering the burner on the turning of the said stem, fluid conducting means adapted for communication with the inlet aperture in the stem on the turning of the latter for admitting fluid thereto, and air supply means for admitting air into said hollow body.

3. In a gas stove, a burner comprising a hollow body, a burner shank having a hollow section adjustably connected with said body, a hollow valve stem journaled in the said body and projected in the hollow section, and having inlet and outlet apertures, a rack depending within said hollow section, a pinion fixed to the stem and meshing with the rack for raising and lowering the burner on the turning of the said stem, fluid conducting means adapted for communication with the inlet aperture in the stem on the

turning of the latter for admitting fluid thereto, air supply means for admitting air into said hollow body, and a perforated burner head on the said shank.

5 4. In a gas stove, a burner comprising a hollow body, a burner shank having a hollow section adjustably connected with said body, a hollow valve stem journaled in the
10 said body and projected in the hollow section, and having inlet and outlet apertures, a rack depending within said hollow section, a pinion fixed to the stem and meshing with the rack for raising and lowering the burner
15 on the turning of the said stem, fluid conducting means adapted for communication with the inlet aperture in the stem on the turning of the latter for admitting fluid thereto, air supply means for admitting air
20 into said hollow body, a perforated burner head on the said shank, and a swinging weighted balancing means connected to the said shank.

5 5. In a gas stove, a burner comprising a hollow body, a burner shank having a hollow section adjustably connected with said
25 body, a hollow valve stem journaled in the said body and projected in the hollow section, and having inlet and outlet apertures, a rack depending within said hollow section, a pinion fixed to the stem and meshing with the rack for raising and lowering the burner
30 on the turning of the said stem, fluid con-

ducting means adapted for communication with the inlet aperture thereto, air supply means for admitting air into said hollow body, a perforated burner head on the said shank, a swinging weighted balancing means connected to the said shank, and means acting upon the stem for sustaining the same in proper relation to the body. 35 40

6. In a gas stove, a burner comprising a hollow body having a guide formed on its inner face, a burner shank having a hollow section provided with a guide-way adjustably engaging said guide on the body, a hollow stem journaled in said body and projected into the hollow section and having inlet and outlet openings, the said outlet opening being in communication with the hollow section, a rack depending within said hollow section, a pinion fixed to the stem and meshed with the rack, bearing means in the body for supporting the said stem, means for conducting fluid from a supply pipe to the inlet opening in the stem on the registering of the said opening with the said means when the stem is turned. 45 50 55

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

CARL H. ERICKSON.

Witnesses:

OSCAR BERGLUND,
JOHN ERICKSON.