

No. 646,483.

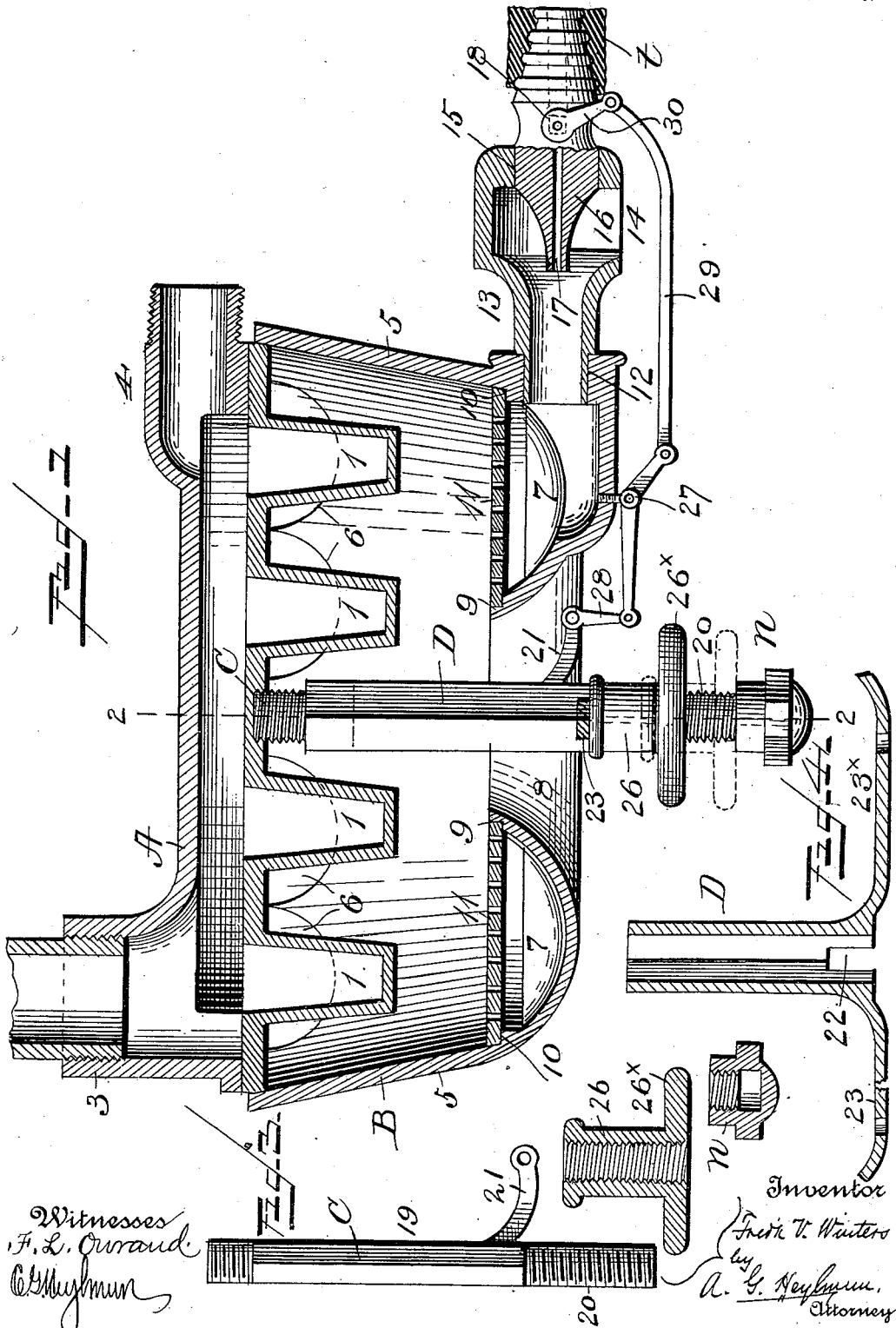
Patented Apr. 3, 1900.

F. V. WINTERS.
GAS OR VAPOR BURNER.

(No Model.)

(Application filed July 25, 1898. Renewed Aug. 31, 1899.)

2 Sheets—Sheet 1.



Witnesses
F. L. Curran
C. H. Hymann

Inventor
Fred V. Winters
by
A. G. Hymann,
Attorney

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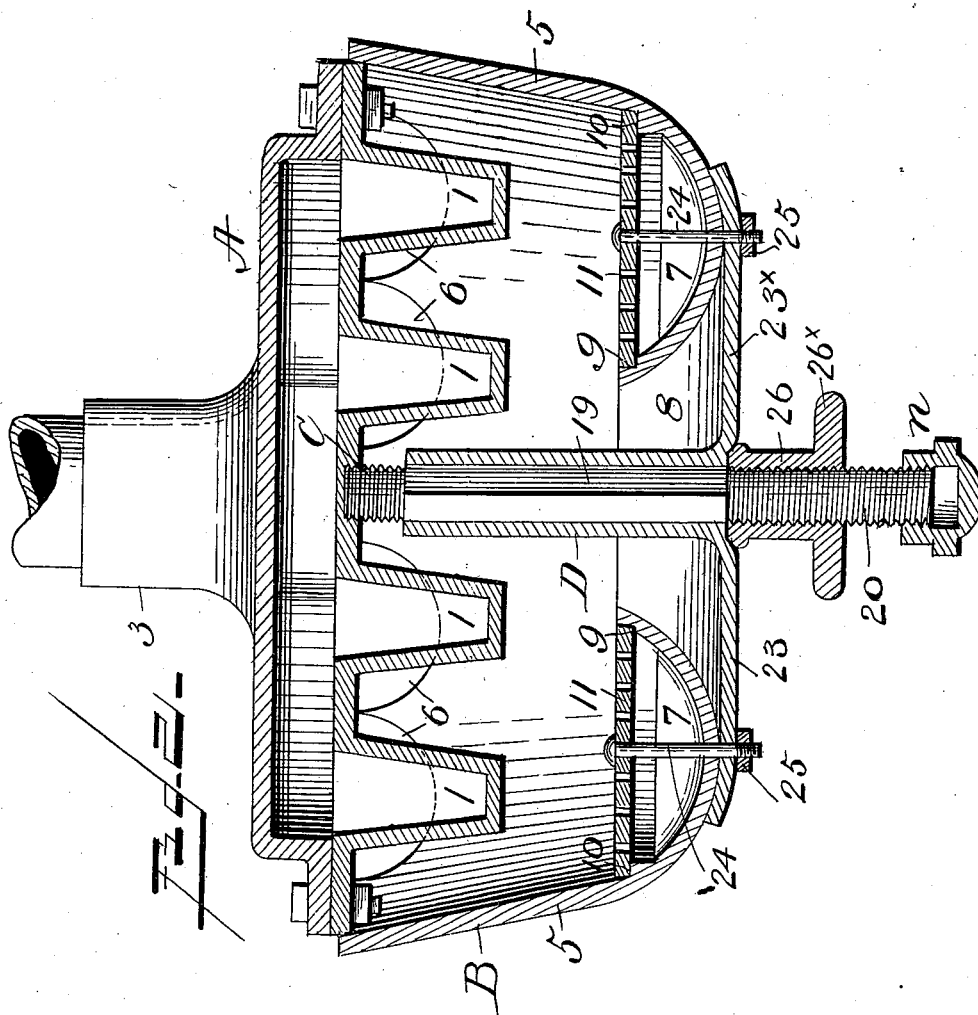
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Witnesses
F. L. Ouraud.
Clarence Edwin Hyman

Inventor
Frederic V. Winters,
by A. G. Keyman.
Attorney

UNITED STATES PATENT OFFICE.

FREDERICK V. WINTERS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
JOHN A. YORK, OF SAME PLACE.

GAS OR VAPOR BURNER.

SPECIFICATION forming part of Letters Patent No. 646,483, dated April 3, 1900.

Application filed July 25, 1898. Renewed August 31, 1899. Serial No. 729,128. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK V. WINTERS, a citizen of the United States of America, residing in New York, in the State of New York, have invented certain new and useful Improvements in Gas or Vapor Burners, of which the following is a specification.

My invention has relation to improvements in gas and vapor burners of that class or style adapted to set under and be applied to heating-surfaces, articles, and vessels; and the objects are to provide an improved adjustable burner whereby the flame will be regulated and brought closer to or farther from the intended field of application, to provide, in conjunction with such adjustable burner, means for regulating and controlling the flow of gas or vapor, and generally to provide a burner of the kind named and for the purpose intended which is certain and efficient in operation and simple and durable in construction.

The invention consists in the novel construction and combination of parts, as will be hereinafter fully specified and particularly as pointed out in the claims.

My present invention is intended and designed especially for use and application to water-heaters of that kind for speedily heating the water in stand-boilers shown and described in my Letters Patent No. 594,166, dated November 23, 1897.

I have fully and clearly illustrated the invention in the accompanying drawings, forming a part hereof, and wherein—

Figure 1 is a transverse section through the burner as applied to a water-heater and central longitudinal section through the gas or vapor inlet pipe, with the gas-cock arranged therein, and showing the lever connections between the burners and the inlet gas-cock. Fig. 2 is a section taken on the line 2 2 of Fig. 1, showing the adjustable sleeve provided with arms supporting the burner-bottom. Fig. 3 is a detail view of the supporting-stem for the adjustable sleeve, with fixed arm to connect with the levers. Fig. 4 is a detail central section of the adjusting-sleeve which carries the burner.

A designates a water-heater adapted to be interposed in a water-pipe between a stand-

boiler and a water source and formed with downward projecting or extending water pockets or receptacles 1, to which the heat is applied from a burner. This heater A is preferably flat and circular, and the wall of the burner conforms to the shape of the heater, so that the burner will set loosely about the lower portion of the burner and inclose and surround the depending water-pockets, substantially as shown in the drawings. The heater A is supported by its connections 3 4 with the water-pipes and in turn supports the burner, as hereinafter specified.

B designates the casing of the burner, consisting of a metal dish-form frame having, preferably, slightly-flaring sides of the desired height, with the upper edge scalloped or recessed, as at 6, to promote combustion by admitting the atmosphere through the opening thus formed between the bottom of the heater and the edge of the burner. The bottom of the burner is formed with a trough or way 7, through which the gas or vapor circulates and into which a burning fluid may be admitted preliminary to being burned and heating the burner to vaporize a fluid, and in the bottom is a central opening 8, through which air from below finds access to lend intensity to the combustion. Around the inner edge of the opening 8 is formed a ledge or shoulder 9, and at the base of the wall of the burner-casing is formed an annular ledge 10, and on these ledges is fitted and arranged a burner-disk 11, perforated to suit the purposes of its use. In the bottom of the burner-casing is formed an opening 12, leading into the trough or way 7, and in which is fitted and secured the gas or vapor inlet pipe 13, provided with the usual air-opening 14, and in the outer end of the Bunsen or inlet pipe is formed an opening 15, in which the gas-cock 16 is fitted and secured. In general construction this gas-cock 16 is that usually employed for the purpose, being formed with a longitudinal gas-passage 17 and a transversely disposed and arranged valve or turning plug 18 to control the flow of gas.

In the bottom of the heater A is screwed the upper end of a bar or rod C of such size as to securely hold and maintain the burner

in its position on the heater. The middle portion 19 of this bar C is made square or angular to fit the corresponding opening in the sleeve of the burner, which slides thereon, and so that the burner will not turn around on its support. The lower end of the bar C is provided with screw-threads 20 for a convenient distance sufficient to permit the requisite adjustments of the burner, and at a determined place on this bar is formed a laterally-projecting curved or downward-directed arm 21, the outer end of which is connected to the levers which actuate the valve in the gas-cock, as hereinafter specified. On the rod C is slidably fitted a sleeve D, having at its lower end a vertical slot 22, setting over the fixed arm 21 of the supporting stem or rod C, and at the lower end or base the sleeve D is provided with oppositely-projecting arms 23 23^x, extending horizontally and secured to the bottom of the shell or casing of the burner. The perforated disk, the shell or casing of the burner, and these arms are all secured in place together and in relation to each other, by means of bolts 24, let through the respective parts and held by nuts 25 on the lower projecting ends of the bolts. On the lower threaded end of the rod or bar C is fitted an adjusting-nut 26, provided with a hand-wheel 26^x, by which the nut is manipulated to move the stem or sleeve upon the rod C, and in such adjustment correspondingly moving the burner carried by the sleeve, and to prevent the hand nut or wheel from being turned off a set or keeper nut *n* is screwed on the end of the rod.

It is premised that in adjusting the burner so as to bring the disk closer to the heater a shorter flame and less flow of gas will accomplish the desired effects than when the burner is moved to increase the space between the bottom of the heater and the perforated disk of the burner. It is also apparent that the mere adjustment of the burner to and from the surface to which the heat is applied will not effect these gradations of calorific results, which unless other means are provided must be attained by independent manipulation of the valve in the gas-cock. My invention, as stated, has for an object the automatic regulation of the flow of the gas to suit the relative adjustments of the burner to and from the surface or thing to which the heat is applied, and to accomplish this to the bottom of the burner shell or casing is fulcrumed an elbow-lever 27, to the long arm of which is suitably connected a link 28, the upper end of which is pivotally connected to the rigid arm 21 on the supporting-rod C, and to the other or short arm of the lever 21 is pivotally connected or jointed a rod 29, the other end of which is jointed to an arm 30 on the stem of the valve or turning plug 18, substantially as shown in Fig. 1 of the drawings. It will now be perceived from the foregoing description, taken in connection with the drawings, that when the burner is moved upward to

bring the perforated disk closer to the bottom of the heater it will carry vertically the elbow-lever 27 with it, which lever being connected to the gas-valve by the rod 29 and arm 30 and to the stationary and rigid arm 21 by the link 28 the result will be that the valve 18 will be closed to the extent corresponding with the upward adjustment and the flow of gas lessened, and then when a reverse movement downward of the burner is desired a corresponding increased flow of gas will be provided.

The burner is mainly intended to be used with ordinary gas for the calorific; but it is obvious that gasolene may be utilized as the fuel. When gas is used, a flexible tube, as *t*, is connected to the gas-cock and the other end of the tube suitably connected to any proper gas source.

The parts are assembled by first securing the sleeve D, the perforated disk, and the burner-casing together, as heretofore described, then slipping the rod C in sleeve from the lower end, then applying the adjusting-nut and set-nut, and then attaching the whole by means of the rod C to the support by revolving the burner until the rod is screwed home. The gas-cock may then be screwed into its place and the levers connected up.

The use or operation is as follows: The burner, with the associated elements, having been secured in position, the gas is turned on and lighted at the burner, and then such adjustment of the burner may be made as may be desired.

What I claim is—

1. A gas and vapor burner, comprising a dish-form casing having a perforated disk therein and a central opening through the casing and the disk, a vertically-disposed sleeve, of less diameter than the said opening, projected therethrough to provide an annular air-space between the walls of the opening and the sleeve, and said sleeve being secured to the casing, and an adjusting and supporting rod in the sleeve, substantially as described.

2. A gas-burner comprising the dish-form frame or casing having a central opening in the bottom, a perforated disk secured therein above the bottom of the casing, and a gas-inlet leading to the space under the disk, a sleeve projected centrally through the opening in the bottom of the burner, and secured to the burner, a supporting-rod disposed through the sleeve, having a threaded lower end, and an adjusting-nut on the threaded portion of the supporting-rod to adjust the position of the sleeve thereon and move the burner therewith.

3. A gas-burner comprising a dish-form frame or casing, having a central opening in the bottom thereof, and depressed trough or way in the bottom, a perforated disk covering the trough or way, a vertical sleeve projected through the opening in the bottom of the burner and secured to the burner, a supporting-rod through the sleeve having a threaded

lower portion and an adjusting-nut on the supporting-rod to move the sleeve with the burner up and down thereon.

4. A gas-burner comprising a dish-form frame or casing having a recessed or scalloped upper edge, and a bottom having an annular gasway therein and a central opening in the bottom, a vertical sleeve disposed through the said opening and formed with arms at its lower end on which the burner rests and is secured thereto, a supporting-rod through the sleeve, and means on the rod to adjust the burner thereon.

5. In a gas-burner, the combination of a stationary support, a gas-burner vertically adjustable on the support, a gas-cock leading to the burner, a valve in the gas-cock, and lever connections between the stationary support, the burner and the valve in the gas-cock, whereby when the burner is moved on the support, the valve in the gas-cock will be actuated, substantially as described.

6. In a gas-burner, the combination of a stationary support, a gas-burner slidably arranged on the support, means on the support to adjust the burner thereon, a gas-inlet to the burner, a gas-cock in the gas-inlet, a valve in the gas-cock, provided with an arm on the stem, and a system of levers secured to and connecting the stationary support, the burner and valve, and whereby when the burner is adjusted on the support the valve is correspondingly actuated.

7. In a gas-burner, the combination of a vertical stationary support formed with a rigid laterally-projecting arm, a vertically-

adjustable gas-burner on the stationary support, a gas-cock carried by and arranged to inject gas into the burner, a valve, in the gas-cock, formed with an arm, a rocking lever secured to the burner, having one arm connected to the arm on the stationary support, and a rod connecting the other arm of the rocking lever to the arm on the valve, substantially as described.

8. The gas-burner herein described comprising a dish-form casing or frame having a central opening in the bottom thereof, a perforated disk arranged in the casing above the bottom thereof, a sleeve projected vertically through the opening in the bottom of the burner and formed with arms extending laterally under the burner, bolts to secure the burner, the disk and the arms together, a central supporting-rod through the sleeve and formed with a laterally-extended arm, means on the rod to adjust the sleeve thereon, a gas-cock to inject gas into the burner under the perforated disk, a valve in the gas-cock formed with an arm, an elbow-lever fulcrumed to the burner, a connecting-rod between the elbow-lever and the arm of the valve, and a connecting-link between the other arm of the elbow-lever and the arm on the supporting-rod as specified.

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

FREDERICK V. WINTERS.

Witnesses:

A. G. HEYLMUN,
CLARENCE GOBIN HEYLMUN.