

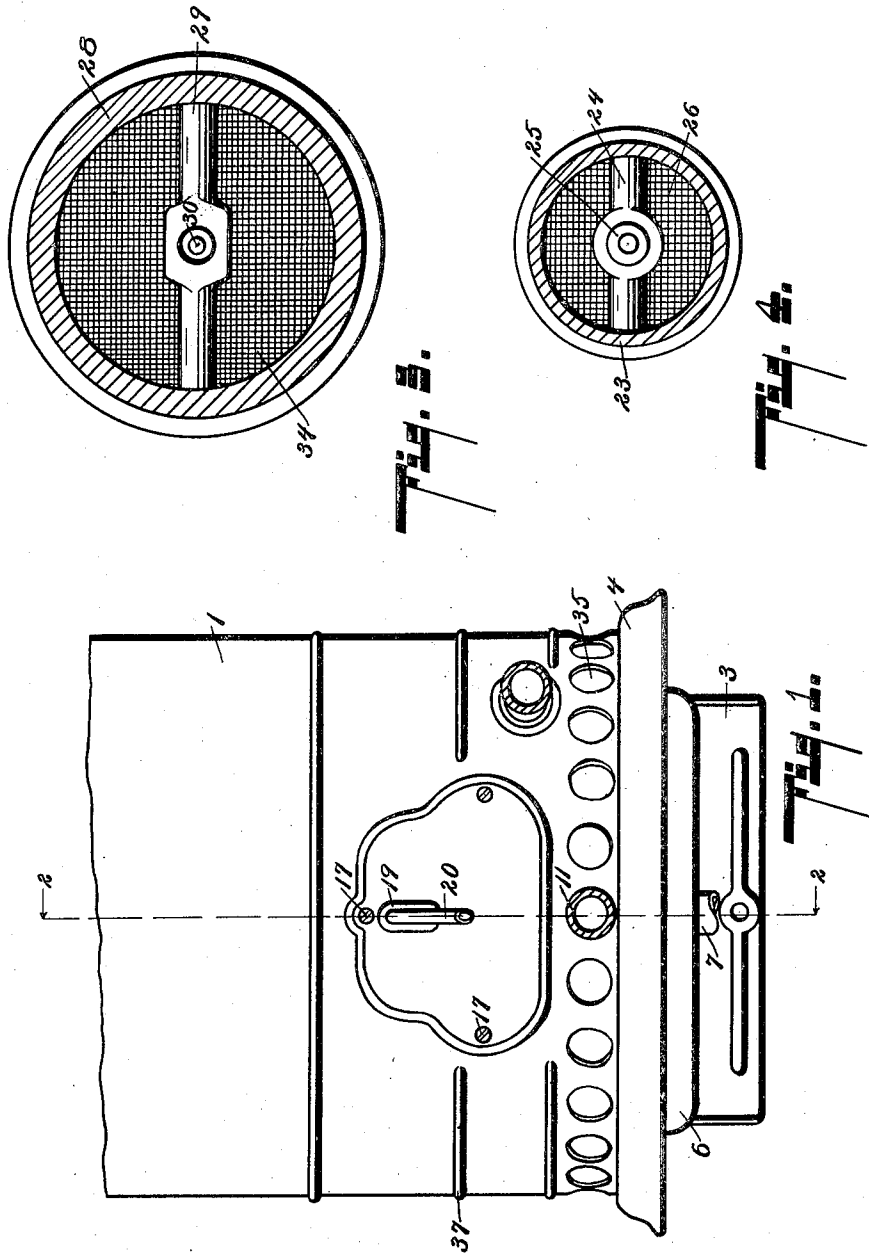
H. S. HUMPHREY.
GAS BURNER.

APPLICATION FILED JAN. 15, 1909.

942,831.

Patented Dec. 7, 1909.

2 SHEETS—SHEET 1.



Inventor

Witnesses

Gertrude Tallman
Clara E. Braden

By

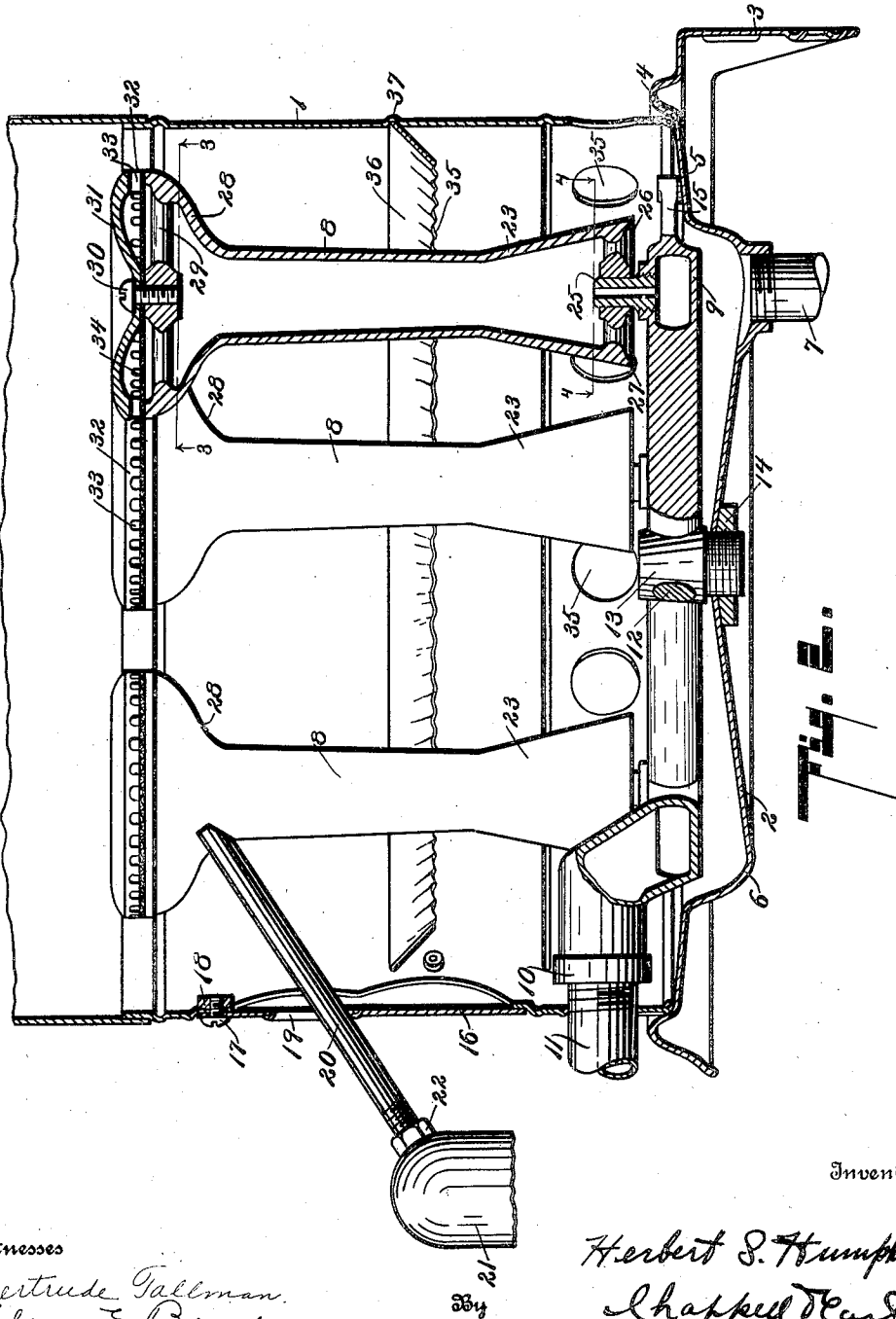
Herbert S. Humphrey
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UNITED STATES PATENT OFFICE.

HERBERT S. HUMPHREY, OF KALAMAZOO, MICHIGAN.

GAS-BURNER.

942,831.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Original application filed March 31, 1908, Serial No. 424,323. Divided and this application filed January 15, 1909. Serial No. 472,463.

To all whom it may concern:

Be it known that I, HERBERT S. HUMPHREY, a citizen of the United States, residing at Kalamazoo, Kalamazoo county, Michigan, have invented certain new and useful improvements in Gas-Burners, of which the following is a specification.

This invention relates to improvements in gas burners.

10 The main object of this invention is to provide an improved burner which is simple in its parts and the parts readily accessible, the burner being particularly adapted as a heating burner.

15 Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

20 The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which,

Figure 1 is a detail elevation of a structure embodying the features of my invention. Fig. 2 is a detail vertical section, taken on a line corresponding to line 2—2 of Fig. 1. Fig. 3 is an enlarged horizontal section, through one of the burners, taken on a line corresponding to line 3—3 of Fig. 2. Fig. 4 is an enlarged horizontal section, through one of the burners, taken on a line corresponding to line 4—4 of Fig. 2.

30 In the drawing, the sectional views are taken looking in the direction of the little arrows at the ends of the section lines; and similar numerals of reference refer to similar parts throughout the several views.

Referring to the drawing, the casing 1 of my improved heater is preferably cylindrical in form and is preferably formed of sheet metal. The base 2 is also preferably formed of sheet metal, although it may be cast, if desired. This base is preferably provided with a bracket portion 3, one side of which is designed to attach the base to the wall or other support for the heater.

50 The base is preferably provided with an upwardly-projecting annular rib 4, which forms a seat for the casing. This properly centers and supports the casing, and has the

further advantage of securing a finished appearance, and it also strengthens the base.

Within the rib is a downwardly-inclined ledge 5, as clearly appears from Fig. 2 of the drawing. The central portion is preferably depressed, as at 6, the bottom of the central portion being preferably convexed. A suitable drip pipe, as 7, is attached to the depressed portion, which forms a trough leading to the drip pipe. This construction is the same as that illustrated in my application for Letters Patent for water heaters, filed March 31, 1908, Serial No. 424,323, of which this case is a division.

The burners 8 are provided with a support which is also adapted to conduct the gas thereto. This support preferably consists of the gas delivery ring 9, which is provided with a suitable nipple 10 by which the ring is coupled to the gas supply pipe 11. This nipple 10 is offset upwardly to permit the gas supply pipe being arranged through the wall of the casing, the gas ring being partially within the depressed portion of the base. The ring is provided with a cross piece 12, having a centrally-arranged stud or post 13, which is arranged through a central opening in the base. The stud is preferably threaded to receive a nut, as 14, by means of which the burner support may be adjusted and secured in position.

85 The burner support is provided with outwardly-projecting supporting arms 15, adapted to rest on the base, as illustrated in the drawing. This burner support is also preferably the same as that illustrated in my pending application referred to. By supporting the burners in this manner, the base and casing can be arranged in any desired relative position to each other, so that the base can be attached to the support whatever its position may be, and the casing adjusted in its desired position relative to the gas supply pipes and for convenience in manipulation of the valves. The casing is provided with an opening through which the burners 9 may be removed or inserted as desired. This opening is provided with a closure 16, which is detachably secured in place, as by means of the screw bolts 17 and the nuts 18, the nuts being preferably secured in position on the inside of the casing wall.

The closure 16 is preferably provided with an opening 19 adapted to receive the pilot

burner 20 and to permit the insertion of a lighted match for igniting the pilot. The pilot burner is detachably secured to the valve casing 21, preferably by threading 5 therein, so that it can be removed when it is desired to open the closure 16. A suitable lock nut, as 22, is provided for the pilot burner, so that it is effectively secured to the valve casing. By thus forming the cas- 10 ing, the burners may be readily removed, as desired, for the purpose of renewal of the parts or cleaning. The burners 8 are provided with a downwardly expanded portion 23 at their lower ends and with a cross-piece 15 24 having a central opening therethrough adapted to receive the gas delivery nozzle 25, the gas delivery nozzle being preferably threaded into the gas supply ring. The burners are thus effectively supported upon 20 the gas delivery ring, so as to be easily removed.

The burners are provided with screens 26 which are arranged in their lower ends below the cross arms, the screens being forced 25 into a suitable seat 27 provided therefor at the lower ends of the burner tubes. This prevents the entrance of dust or other materials into the burner and is effective in preventing the clogging of the burners, which is of especial advantage, as the water heaters 30 are especially designed for use in bath rooms where lint and the like is likely to be drawn into the casing. Such material is here collected upon the screens so that it does not 35 pass up to the jet orifices of the burners. It is also of advantage that in these inclosed burners, arranged in a casing, the gas may explode in igniting, thereby causing back-firing or back-lighting of the gas at the 40 nozzles, the back-firing taking place through the lower end of the burner tube. This arrangement effectively prevents this.

The burner tubes are expanded into heads 28 at their upper ends, the heads being provided with a cross piece 29 into which the 45 retaining screw 30 is threaded for the burner cap 31. This burner cap is provided with a downwardly-projecting flange 32 at its edge, which has serrations or notch-like 50 jet orifices 33 therein. A screen, as 34, is secured in position by clamping between the burner cap and the heads 28. This effectively holds the screen in position, and prevents back-firing at this point. The

burner is thus effective, and, at the same time, 55 very durable, and is also very simple in construction.

The casing is provided with air inlet openings 35 at its lower end through which the air is delivered to the burners. Above these 60 openings I preferably provide a drip ledge 36 which is secured to the wall, preferably by forming a bead 37 in the wall. This ledge is inclined downwardly and is preferably corrugated at its inner edge as the 65 water more readily drips therefrom.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a gas burner, the combination of a 70 gas delivery nozzle; a burner tube having an expanded conical portion at its lower end and an expanded head at its upper end; integrally formed cross pieces arranged at the upper and lower ends of said tube, the lower 75 cross piece having a hole therein adapted to receive the said gas delivery nozzle whereby the burner is supported; a screen arranged on the lower end of said burner tube below said cross piece; a cap or tip for said burner 80 having a downwardly-turned flange at its edge adapted to rest on said head, said tip having notch-like jet orifices in its edges; a retaining screw for said cap threaded into said cross piece at the upper end of said 85 burner; and a screen clamped between said head and said cap.

2. The combination with a burner tube having an expanded head at its upper end and a cross piece in said head, of a cap or tip 90 having a depressed central part and a downwardly-turned flange at its edge adapted to rest on said head, said flange having jet orifices therein; a screen arranged between said head and said cap; and a retaining 95 screw for said cap threaded into said cross piece whereby said cap and screen are secured in position; said screen being clamped at its edges between said head and cap and at its center between said arm and the de- 100 pressed part of said cap.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

HERBERT S. HUMPHREY. [L. s.]

Witnesses:

CLORA E. BRADEN,
PHINA WOODRUFF.