Aug. 14, 1923. 1,464,609

A. H. HUMPHREY

GAS HEATER

Filed Nov. 22, 1919 2 Sheets-Sheet 1

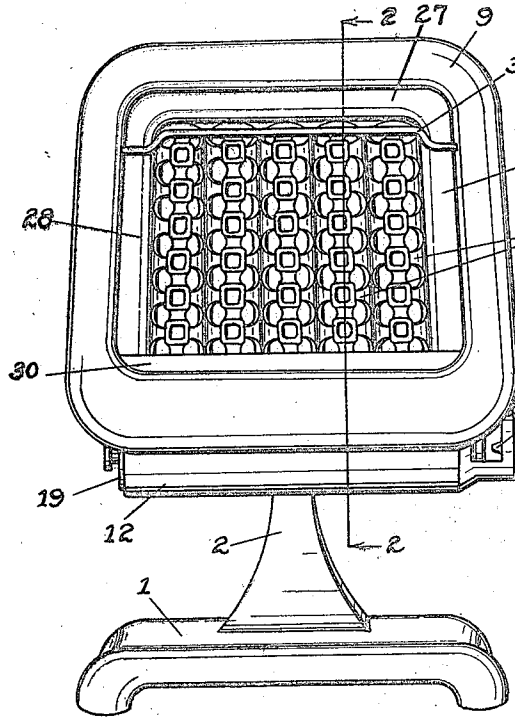


FIG. I.

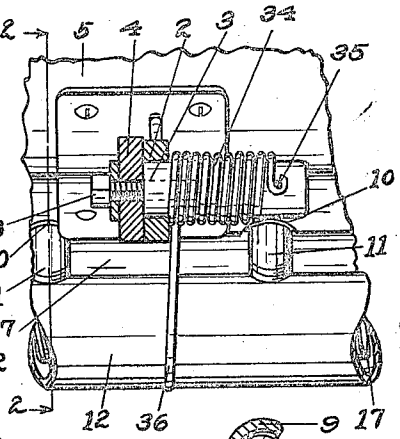


FIG. III.

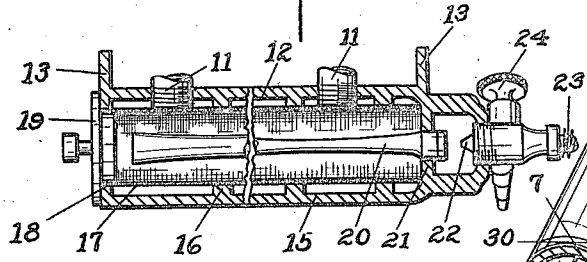


FIG. IV.

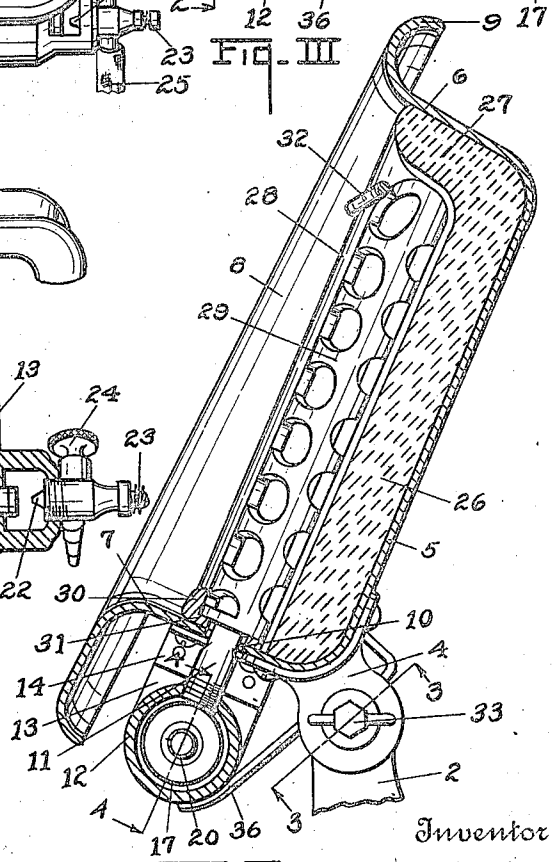


FIG. II.

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GAS HEATER

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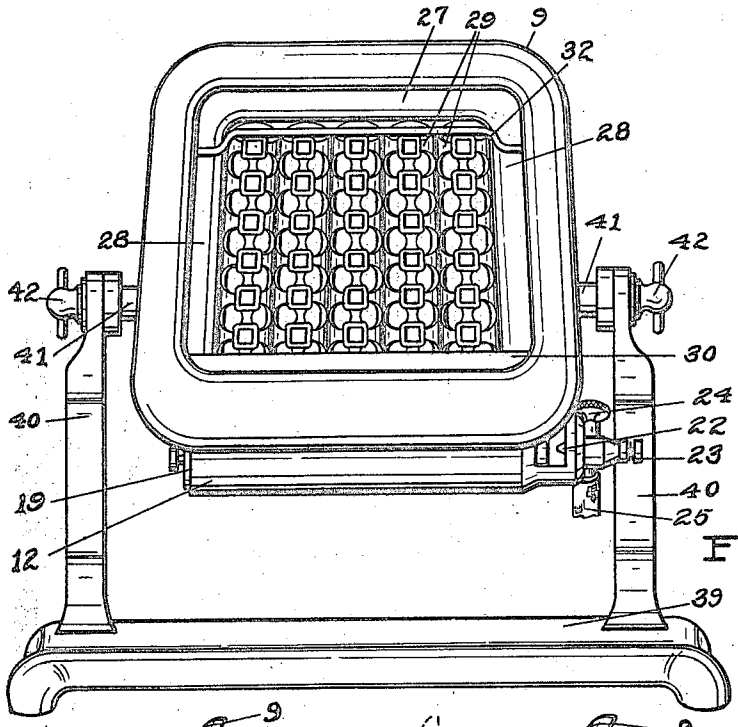


FIG. VI.

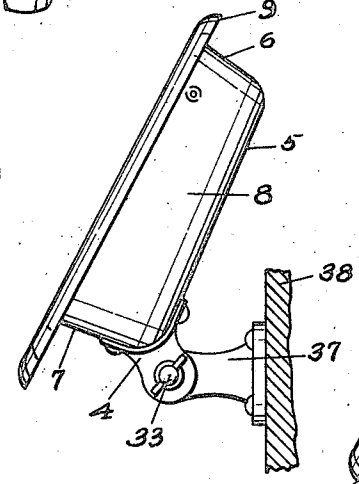


FIG. V.

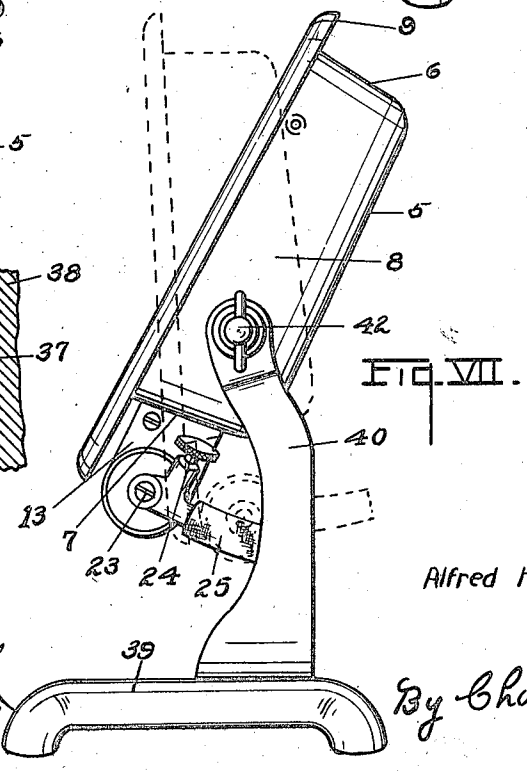


FIG. VII.

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UNITED STATES PATENT OFFICE.

ALFRED H. HUMPHREY, OF NEW YORK, N. Y.

GAS HEATER.

Application filed November 22, 1919. Serial No. 339,917.

To all whom it may concern:

Be it known that I, ALFRED H. HUMPHREY, a citizen of the United States, residing at the city and county of New York, State of New York, have invented certain new and useful Improvements in Gas Heaters, of which the following is a specification.

This invention relates to improvements in gas heaters.

The main objects of this invention are:

First, to provide an improved gas heater well adapted for use as a portable heater or to be mounted upon a wall or the like which may be adjusted to direct the heat as desired.

Second, to provide an improved gas heater which is compact and simple in structure and at the same time very efficient.

Third, to provide an improved gas heater embodying these advantages which is attractive in appearance and economical to produce.

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

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing forming a part of this specification, in which:

Fig. I is a front perspective view of a gas heater embodying the features of my invention.

Fig. II is an enlarged detail vertical section on a line corresponding to line 2—2 of Figs. I and III.

Fig. III is a detail view partially in section on a line corresponding to line 3—3 of Fig. II showing details of the support for the heater body.

Fig. IV is a detail view mainly in section on a line corresponding to line 4—4 of Fig. III showing details of the burner.

Fig. V is a side view showing my improved heater mounted upon a wall or like support.

Fig. VI is a front perspective view of another modified embodiment of my invention, the modification being in the supporting base.

Fig. VII is a side view of the structure shown in Fig. VI, one adjustment of the body of the heater being indicated by dotted lines.

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

Referring to the drawing, the base 1 in the structure shown in Fig. I is provided with an upwardly projecting arm 2 carrying a pivot 3 for the arm 4 of the heater body. The heater body comprises a shell-like body member preferably formed as an integral sheet metal stamping having a back wall 5, a top 6, bottom 7 and sides 8 with the top, bottom and sides terminating in a comparatively wide rim-like flange 9, the flange being continuous as shown, thus strengthening the body and adding to its appearance.

The bottom wall 7 is provided with burner tip openings 10 to receive the tips 11 of the burner 12 which has upwardly projecting arms or hangers 13 thereon secured to the body member by means of the angle pieces 14. The individual burner members or tips 11 are preferably those shown in Letters Patent, No. 1,245,346, issued to me November 6, 1917. The burner tips 11 are threaded into the burner body member 15 which, in the embodiment illustrated, is a casting. The burner body member has internal annular ribs 16 which support the cylindrical screen 17. This screen is adapted to be inserted and removed through an opening 18 in one end of the burner body, the opening being closed by the closure 19.

A Bunsen tube 20 is mounted on the opposite end wall 21 of the burner body and positioned to receive gas from the nozzle 22. This nozzle is controlled by the valve 23. A valve 24 controls the delivery of gas from the pipe 25.

Within the shell-like body member described is a fire back 26 of earthy material having a forwardly projecting flange 27 at its upper end and flanges 28 at its sides. The foraminated tubular radiants 29 are arranged against this fire back, their lower ends being disposed behind the flange 30 of the retaining bar 31. The upper ends of the radiants are held by the rod 32 which is somewhat bail-shaped so that it may be swung out to permit the ready insertion and removal of the radiants. The burner tips are arranged to deliver centrally to the lower ends of the radiants, and it is found that owing to the tubular character of the radiants and their arrangement within the

fire back as described, they are quite evenly heated even when the heater body is tilted rearwardly at a very substantial angle.

It will be noted that the burner tips are directed to deliver longitudinally of the tubular radiating elements and that the burner is mounted on the body so as to be adjusted therewith, the relative position of the radiating elements and the burner tips being maintained throughout the tilting adjustment which is in a plane transverse to the plane of the longitudinal plane of the radiating elements.

It is found that with this arrangement the products of combustion follow up the tubular radiating elements, as stated, throughout its tilting adjustment, for instance, when tilted at a very substantial angle.

The heater body is supported in its adjusted positions by means of the clamping screw 33.

To support the heater body, that is, to prevent its falling forward when the screw is loosened, I arrange a coiled spring 34 upon the pivot 3 to secure one end thereof to the pivot at 35 and extend the other end into an arm 36 which engages the burner 12. This, as stated, prevents the heater body falling forward when the clamping screw is loosened for the adjustment of the heater body or otherwise.

In the modification shown in Fig. V, the base 37 is adapted as a bracket secured to a wall or other support as 38. In the modification shown in Figs. VI and VII, the base 39 is provided with a pair of upwardly projecting arms 40 while the heater body is provided with pivot arms 41 adjustably secured to the arms 40 by means of the clamping screws 42.

My improved gas heater is simple and compact in structure so that it is well adapted for the heating of small rooms and as a portable heater or to be attached to a wall. The adjustment of the body enables the directing of the heat as may be desired and, as stated, with the parts thus arranged, the radiants become quite uniformly heated throughout the varying tilting adjustments of the heater. By mounting the burner upon the body member the burner tips maintain their relative relation to the radiants throughout tilting adjustment of the body so that the gases and flames are directed centrally into the radiants. This secures a substantially uniform heating of the radiants throughout the various tilting adjustments.

It is believed that the embodiments or adaptations of my invention illustrated will enable those skilled in the art to which my invention relates to embody or adapt the same as may be desired and I have not, therefore, attempted to illustrate or describe various other embodiments or adaptations which I contemplate and which might be desirable in the manufacture of heaters for particular purposes or for use in particular relations.

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

1. In a gas heater, the combination of a base member, a shell-like body member open at the front and having burner tip openings in the bottom thereof, a fire back of earthy material disposed within said body member, foraminated tubular radiating elements disposed against said fire back in alignment with said burner openings, a burner having a plurality of burner tips mounted on said body member with its tips delivering into said radiating elements, a supporting arm on said body member, a pivot on said base member provided with a clamping screw engaging said arm whereby the heater may be adjusted and secured in its adjusted positions on said pivot, and a spring on said base member for supporting the body member when said clamping screw is loosened.

2. In a gas heater, the combination of a base member, a body member, a burner mounted on said body member, a supporting arm on said body member, a pivot on said base member provided with a clamping screw engaging said arm whereby the heater may be adjusted and secured in its adjusted positions on said pivot, and a spring on said base member for supporting the body member when said clamping screw is loosened.

3. In a gas heater, the combination of a body member comprising back, top, bottom and side walls provided with a continuous out-turned flange, the bottom wall having burner tip openings therein, a fire back of earthy material fitting within said body member and having forwardly projecting integral top and side flanges, a radiant supporting bar having an upwardly projecting flange at its forward edge disposed on said bottom member in front of said fire back, foraminated tubular radiating elements disposed on said bar at the rear of its said flange to rest against said fire back and in alignment with said burner openings, a retaining rod engaging the upper ends of said radiating elements, and a burner having a plurality of burner tips projecting through the openings in said bottom thereof into said radiating elements.

4. In a gas heater, the combination of a body member comprising back, top, bottom and side walls provided with a continuous outturned flange, the bottom wall having burner tip openings therein, a fireback of earthy material fitting within said body member, foraminated tubular radiating elements disposed in said body member in front of said fireback and in alignment with said burner openings, and a burner having a plu-

rality of burner tips mounted on said body member at the rear of the bottom flange with its tips in alignment with said radiating elements.

5. In a gas heater, the combination of a body member comprising integral back, top, bottom and side walls provided with a continuous out-turned flange, the bottom wall having burner tip openings therein, a fireback of earthy material fitting within said back member and having forwardly projecting flanges fitting the top and side walls of said side member, foraminated tubular radiating elements disposed against said fireback in line with said burner openings, and a burner mounted below said body member and having a plurality of burner tips aligned with said openings therein and with said radiating elements.

6. As an article of manufacture, a gas heater comprising a base provided with a standard and a body member mounted on said standard and comprising back, top, bottom and side walls provided with a continuous out-turned flange, a fireback of earthy material fitted within said member and having forwardly projecting flanges fitting the top and side walls of said body member, and foraminated tubular radiating elements arranged in front of said fireback within the said flanges thereof.

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

ALFRED H. HUMPHREY. [L. S.]

Witnesses:

GEO. A. HUMPHREY,

J. P. CONROY.