Feb. 4, 1969 CARL-ANKER MEJYR 3,425,406

RADIATION HEATER

Filed Jan. 31, 1967

Fig. 1

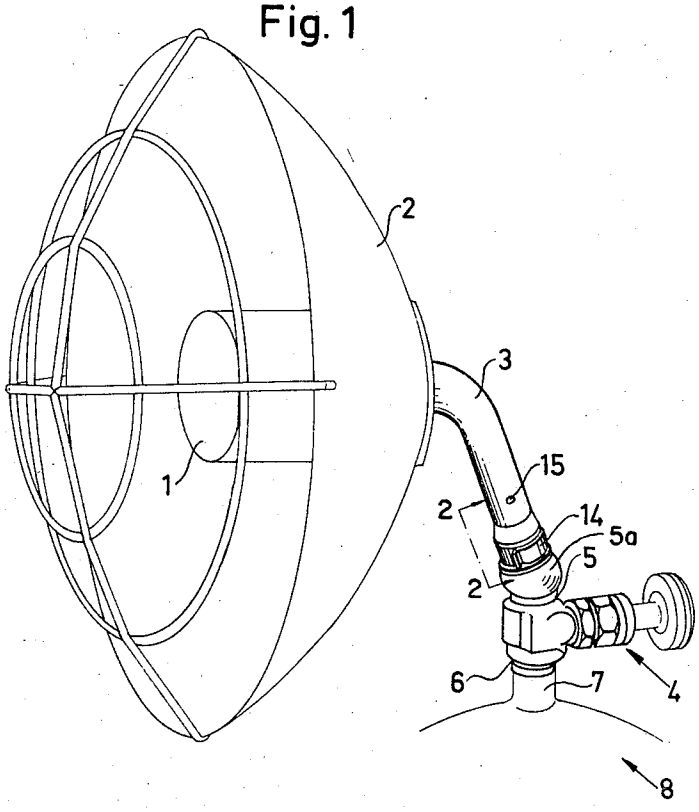


Fig. 2

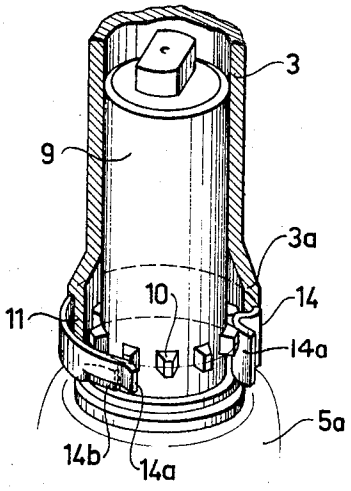
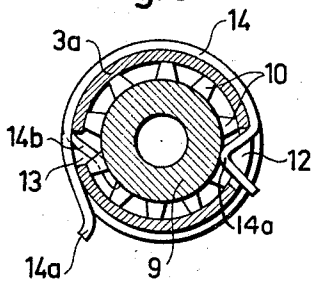


Fig. 3



United States Patent Office 3,425,406 Patented Feb. 4, 1969

3,425,406

RADIATION HEATER

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Filed Jan. 31, 1967, Ser. No. 612,888
Claims priority, application Sweden, Aug. 11, 1966, 10,890/66
U.S. Cl. 126—92 9 Claims
Int. Cl. F24c 3/04; F16b 7/00; F16l 21/00

ABSTRACT OF THE DISCLOSURE

A gas burning radiation heater including pivot structure permitting rotational movement of the heater relative to its fuel supply source. Also included is a releasable anti-rotation structure operatable to selectively maintain the heater in any one of a number of predetermined fixed positions.

The present invention relates to a radiation heater which is intended to be secured to a bottle of gas and capable of being swivelled in relation thereto, and by means of which it is thus possible to change the direction in which the rays of heat are projected without it being necessary to change the position of the gas bottle to which the radiation heater is connected.

The radiation heater according to the invention is, for this purpose in addition to being provided with a burner having a surrounding reflector and a gas valve also provided with a curved burner pipe secured to the burner and which is pivotally connected, at its end facing away from the burner, to the gas valve at an angle towards the axis of the pipe connecting the gas valve to the outlet stub of the gas bottle. The gas valve is suitably provided with a valve nozzle which forms an angle with said connecting pipe and which serves as a pivot around which the burner pipe can swivel. The nozzle and the end of the burner pipe connected to said valve are suitably designed in a special way, so that the burner pipe can be made to adopt various angular positions and remain in these positions and be restrained against axial displacement. For this purpose the nozzle is provided with a series of teeth located at a short distance from its point of attachment in the valve housing and the end of the burner pipe is provided with a collar situated around said series of teeth, the collar having a circular groove arranged on the outside thereof which along two short, diametrically situated portions merges with holes passing through the walls of the pipe, said groove accommodates a leaf spring which is bent inwardly at one end and projects through one hole in the pipe wall and snappingly engages the series of teeth of the nozzle. The other end of the spring is divided into two tongues of different lengths of which the shorter is bent inwardly and engages the nozzle through the second hole in the pipe wall, between the series of teeth and the nozzle attachment point, thereby restraining the burner pipe against axial movement.

The invention will be more closely described below with reference to the accompanying drawing wherein:

FIGURE 1 is a perspective view illustrating a radiation heater embodying the concepts and principles of the invention;

FIGURE 2 is an enlarged perspective view taken substantially along line 2—2 of FIG. 1, certain parts having been broken away to reveal constructional details; and

FIGURE 3 is a cross-sectional view of the nozzle of the heater and associated members.

The radiation heater shown in FIG. 1 mainly comprises a burner 1 having a surrounding reflector 2, a

curved elongated burner pipe 3, connected to the burner, and a gas valve 4 having a valve housing 5 which by its inlet means in the nature of a connecting pipe 6 is adapted to be vertically connected to and in alignment with the outlet stub 7 of bottle of gas 8.

Housing 5 referably includes an upper extension 5*a* which mounts outlet means in the nature of a cylindrical nozzle 9. Extension 5*a* is configured so that nozzle 9 extends at an angle relative to pipe 6. As can best be seen viewing FIG. 2, nozzle 9 is telescopically received within pipe 3 and serves as a pivot whereby pipe 3 and thereby the heater may be rotated about the longitudinal axis of nozle 9. Nozzle 9 is provided with structure in the nature of a series of circumferentially spaced, radially extending teeth 10 disposed adjacent extension 5*a*. The end of the burner pipe is provided with a collar 3*a* disposed around the teeth 10, the said collar 3*a* being provided with an outwardly opening annular groove 11 extending thereabout. Along two short diametrically situated portions the groove 11 merges with holes 12 and 13 passing through the tube wall. Arranged in the groove 11 is structure in the nature of a curved leaf spring 14, the one end of which is bent across its whole width presenting a radially movable element 14*a* which projects through hole 12. Spring 14 yieldably biases element 14*a* into engagement with the series of teeth 10 through the hole 12 and serves to retain the pipe 3 in various angular positions. Thus, spring 14 and teeth 10 are relatively movable into and out of engagement with one another to present releasable anti-rotation means for selectively maintaining pipe 3 in any one of of a plurality of fixed, predetermined positions relative to nozzle 9. The opposite end of the leaf spring 14 is divided into two tongues 14*a* and 14*b* of different lengths, of which the shorter lower tongue 14*b* is bent in and engages the nozzle through the hole 13 in the space between the series of teeth 10 and the attachment point of the nozzle 9 in the valve housing. For this purpose the width of the lower tongue 14*b* is equal to the width of said space, the burner pipe 3 consequently being fixed relative to the nozzle 9 in the longitudinal direction.

To permit air for combustion to flow into the burner pipe 3 and mix with the fuel gas the said pipe is provided with holes 15 (see FIG. 1) in the wall of the pipe at the same level as the opening of the nozzle 9. If a clearance is formed between the burner pipe 3 and the nozzle 9 air may also be introduced through the clearance, the air being sucked in at this position by the ejector action of the fuel gas. Consequently it is not necessary to seal the connection between the burner pipe and the nozzle, since there is no risk that the gas will escape therethrough.

It is thus possible by means of the described radiation heater according to FIG. 1 to direct the heat substantially horizontally and if the said heater is turned to positions other than that shown on the drawing a more or less upwardly directed heat radiation is obtained. Naturally it is possible to bend the burner pipe still further than that shown in FIG. 1, whereby a downwardly directed radiation of heat is also obtainable.

I claim:

1. A radiation heater assembly adapted for connection to a vertical outlet stub of a gas bottle, said assembly comprising:

a gas burner provided with a surrounding reflector;

a gas valve having inlet means adapted for connection to said stub in alignment therewith and elongated outlet means disposed at an angle relative to said inlet means; and

an elongated, curved burner pipe having one end thereof secured to said burner and the other end pivotally connected to said outlet means for rotation about the longitudinal axis of the latter.

2. A radiation heater as set forth in claim 1 wherein is included releasable anti-rotation means for selectivity maintaining said burner pipe in a predetermined position relative to said outlet means.

3. A radiation heater as set forth in claim 1 wherein said outlet means includes an elongated nozzle extending outwardly from said valve along said axis, said nozzle being telescopically received within said other end of the burner pipe and serving as a pivot therefor.

4. A radiation heater as set forth in claim 3 wherein is provided a plurality of air holes through said pipe adjacent the outer end of the nozzle.

5. A radiation heater as set forth in claim 3 wherein the nozzle and the pipe are configured to present a clearance therebetween for passage of air.

6. A radiation heater as set forth in claim 3 wherein is included releasable anti-rotation means comprising first structure on the nozzle and second structure on said other end of the burner pipe, said structures being relatively movable into and out of engagement with one another for selectively maintaining said nozzle and said pipe in a plurality of fixed positions.

7. A radiation heater as set forth in claim 6 wherein said structure on the nozzle comprises a series of circumferentially spaced teeth extending radially outwardly from the nozzle at a location spaced from the outer end of the nozzle, said other end of the burner pipe presenting a collar at its terminal end disposed around said teeth, said structure on the pipe comprising a movable element mounted on said collar and means yieldably biasing said element into engagement with said teeth.

8. A radiation heater as set forth in claim 7 wherein said collar is provided with an outwardly opening groove extending therearound and an opening extending from the groove radially through the collar, said structure on the pipe comprising a curved leaf spring disposed within the groove and having one end thereof bent to present said element, said element projecting through the opening.

9. A radiation heater as set forth in claim 8 wherein is provided a second opening through said collar spaced from the opening for said element, there being a tongue on said spring spaced from said element and extending through said second opening to engage said nozzle beneath the teeth to limit axial movement of the pipe relative to the nozzle.

References Cited

UNITED STATES PATENTS

1,473,844	11/1923	Garbarini.
1,713,827	5/1929	Hanson.

FOREIGN PATENTS

547,922	10/1922	France.
591,931	4/1959	Italy.

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U.S. Cl. X.R.

248—478, 481; 285—401; 287—118