April 13, 1965 W. J. KUHN ETAL 3,178,140

MEANS FOR MOUNTING PILOT BURNERS IN RELATION TO MAIN BURNERS

Filed July 29, 1963

FIG. 1

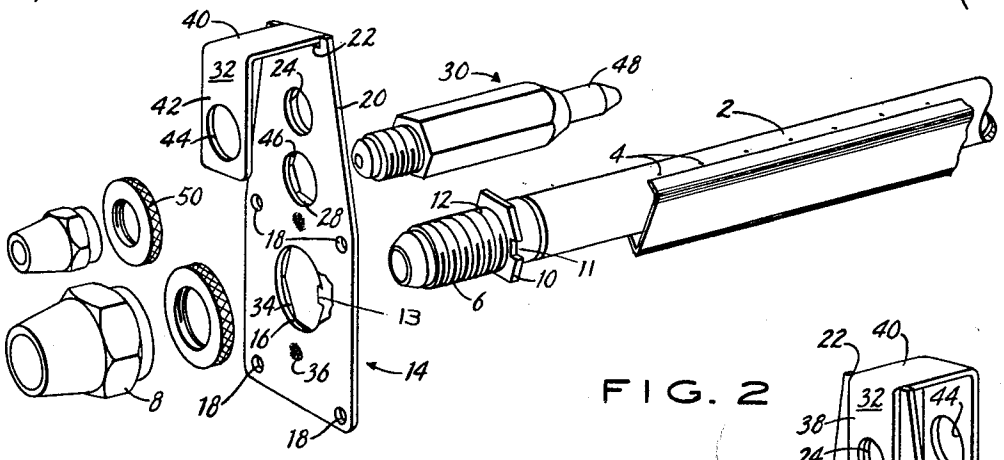


FIG. 2

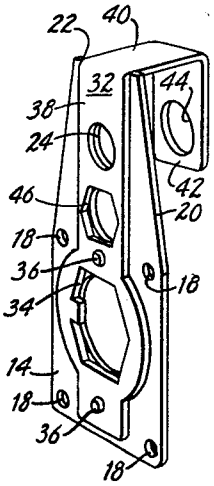


FIG. 3

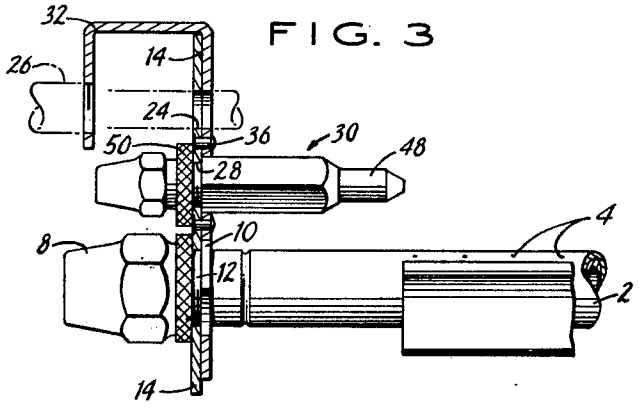


FIG. 4

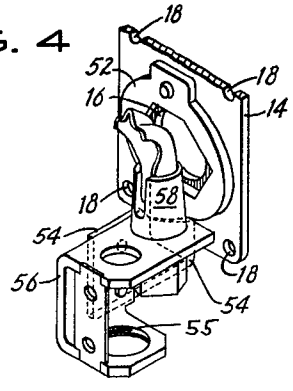
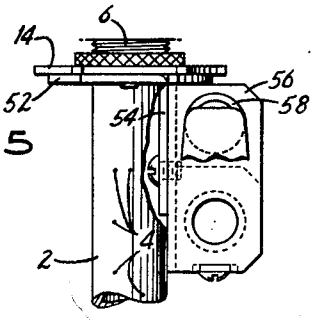


FIG. 5



INVENTORS
WILLIAM J. KUHN
PAUL E. MAURICE

BY

Morgan, Finnegan, Durham & Pine
ATTORNEYS

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MEANS FOR MOUNTING PILOT BURNERS IN RELATION TO MAIN BURNERS

William J. Kuhn, Springfield, and Paul E. Maurice, Ludlow, Mass., assignors to Heatbath Manufacturing Company, Inc., Springfield, Mass., a corporation of Massachusetts

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This invention relates to a new and improved supporting means for mounting a pilot burner in relation to a main burner. More particularly, the present invention relates to a new and improved supporting means including a universal header plate constructed and arranged to be used with a pilot mountnig bracket for mounting a pilot burner parallel to the main burner and which is constructed and arranged for use with a pilot mounting bracket for mounting a pilot light at right angles to the main burner.

The supporting means of the present invention is particularly useful in supporting pilot burners in relation to bar type gas burners of the non-aerated type for use in heating brooders for poultry or livestock, but the invention is not limited to any particular field of application. The invention of the present application provides a simple expedient supporting means structure which is adapted to mass production methods wherein the parts are easily replaced or exchanged in case of damage and wherein relatively inexpensive light sheet metal parts can be used rather than heavy and expensive castings. Thus with only three main parts, the present invention provides a structure for mounting the pilot burner either vertically or horizontally. The present invention provides an improved supporting structure for positively positioning the main burner in relation to the pilot burner. The present invention is relatively simple in construction, thus simplifying the changing of main burner tubes.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

In view of the foregoing it is an object of this invention to provide a simple, inexpensive and versatile supporting means for mounting a pilot burner parallel to or at right angles to the main burner.

Another object of this invention is to provide a simplified structure wherein only three major parts are used to mount a pilot burner either horizontally or vertically.

Another object of this invention is to provide a universal header plate which is constructed and arranged to be used with a horizontally disposed bar type gas burner tube in conjunction with means for mounting a pilot burner in either the horizontal or vertical direction.

Another object of this invention is to provide a new new and improved supporting means for mounting a pilot burner in a horizontal position parallel to a main burner.

A still further object of this invention is to provide a new and improved supporting means for mounting a pilot burner in a vertical position at right angles to a main burner.

Another object of this invention is to provide an improved structure for mounting a main burner wherein the main burner is easily removed and changed.

A still further object of this invention is to provide a new and improved structure for positively positioning a main burner in relation to a pilot burner.

Additional objects and advantages of the invention will be set forth in the description which follows and in part will be obvious from the description or may be learned from practicing the invention, the objects and advantages being realized and attained by means of the instrumentalities and combinations particularly pointed out in the appended claims.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate one embodiment of the invention, and together with the description serve to explain the principles of the invention.

Of the drawings:

FIGURE 1 is an exploded perspective view of a form of the invention wherein the pilot burner is disposed in parallel relation to the main burner.

FIGURE 2 is a perspective view of the universal header plate in conjunction with a pilot mounting plate for mounting the pilot burner in a horizontal position parallel to the main burner.

FIGURE 3 is a longitudinal sectional of the view device shown in FIGURE 1.

FIGURE 4 is a partial perspective view of the universal header plate in conjunction with a pilot mounting plate for mounting the pilot burner in a vertical position vertical to the main burner.

FIGURE 5 is a top view of the device shown in FIGURE 4.

Referring now to the drawings, there is shown therein a preferred embodiment of the invention.

As shown in FIGURE 1, there is disclosed a bar or tube type main burner 2 having a plurality of longitudinally spaced apertures 4. At one end of the main burner 2 is a threaded fitting 6 on one end of which a gas inlet connector 8 is threadedly mounted. The other end of the fitting 6 terminates in a polygonally shaped element 10 preferably having the shape of a hexagonal 10.

In accordance with this invention, means are provided for positively positioning the main burner in relation to the pilot burner. As embodied, this means includes a groove 11 in member 10 and a tongue 13 on universal header plate 14. It will be appreciated that these elements in the combination subsequently described positively position the main burner in the desired position.

It will be understood that the gas inlet connector 8 is attached to a gas supply means in the usual manner not shown.

Intermediate the threads and the hexagonal element 10 on the connector 6 is a relatively short cylindrical portion 12. The purpose of this portion will be described subsequently.

In accordance with this invention a universal header plate 14 is provided which is constructed and arranged for use with a pilot mounting plate for mounting a pilot burner in a horizontal disposition parallel to the main burner and is also adapted for use with a pilot mounting plate for disposing a pilot light burner in a vertical position at right angles to the main burner.

The header plate 14 is made of brass, aluminum or steel and is conveniently made by stamping, thus eliminating the need for a heavy cast part. The header plate 14 is an integral stamped piece, but for convenience of description can be considered as having sections. Thus the header plate includes rectangular portion having an aperture 16 located in the center thereof adapted to receive one end of the horizontal disposed bar burner 2. The thickness of the header plate is about equal to the width of the cylindrical portion 12 of the connector 6. In each corner of the rectangular portion holes 18 are provided for mounting a universal header plate to a frame (not shown) for maintaining the header plate in a stationary position. On diagonally opposite sides of the aperture, holes are provided for use in combination with connecting means to be described subsequently. The upper portion of the universal header plate includes a tapered zone 20 having at its terminal end a notch 22 which extends almost the entire width of the header plate.

The tapered portion of the header plate 14 adjacent the notch includes an aperture 24 in which the thermocouple element 26 can be mounted by any conventional means. Intermediate the aperture 24 for the thermocouple 26 and the main burner 2 is another aperture 28 which is adapted to receive a horizontally disposed pilot burner 30.

The above described construction of the header plate is such that it is adapted for use with a pilot mounting bracket which locates a pilot burner parallel to or at right angles to the main burner 2. In either instance the pilot mounting plate is made of relatively thin sheet metal such as aluminum, brass, steel, etc., and can be formed into the appropriate shape by a stamping and punching operation.

The header plate 14 of the present invention is adapted for use with a pilot mounting plate 32 which disposes the pilot burner in the horizontal position. In this form of the invention the lower portion of the pilot burner bracket includes an aperture 34 having the shape of a convex polygon preferably that of a hexagon in which the hexagonally shaped element 10 on the main burner 2 can be located. The thickness of the bracket 32 is susbtantially equal to the thickness of the member 10 so that element fits flush with the surface of the universal header plate. The bracket also includes a pair of apertures adapted to be aligned with the corresponding apertures in the universal header plate for receipt of rivets 36 or other similar means for connecting the header plate and the pilot mounting plate.

In this form of the bracket a narrow portion 38 extends upwardly from a position adjacent the aperture for the main burner.

At its upper end adjacent the end of the header plate the pilot bracket is formed with a horizontally directed portion 40 which is engaged in the notch 22 at the end of the universal header plate. At its terminal end the pilot mounting bracket has a vertically disposed portion 42 having an opening 44 therein. The opening 44 on the vertically extending portion of the bracket is coaxial with the opening 24 for receipt and mounting of the thermocouple element 26 in spaced relation to the main burner.

Immediately below the aperture for the thermocouple element is a convex polygonally shaped opening 46 through which a pilot burner extends. Conveniently the body of the pilot burner 30 is polygonally shaped and includes a reduced diameter portion 48 so that the polygonal portion of the pilot burner abuts against the header plate and can be held in the proper position by the serrated hand element 50. The thermocouple element is connected to conventional means (not shown) for turning the main burner off in the event that the pilot burner is extinguished.

A mounting bracket in combination with the header plate wherein the pilot tube is disposed at right angles to the main burner is shown in FIGURES 4 and 5. Where the pilot burner is to be disposed in the vertical position, i.e., at right angles to the mounting bracket 52 the portion of the mounting bracket adjacent the lower end of the header plate is identical to that described above for the bracket for horizontally disposing the pilot burner. The thickness of the bracket 52 is substantially equal to the thickness of the element 10 so that the element fits flush with the surface of the mounting plate as described above.

The lower end of the burner bracket 52 includes a depending portion having a flange 54 extending at right angles to the body of the pilot mounting bracket with apertures therein through which screw means may be passed to engage the frame or bracket 56 for a vertically extending pilot burner 58. In this instance the pilot burner is disposed in the vertical direction so that the thermocouple (not shown) extending through aperture 55 in the bracket will be adjacent the flame of the pilot. It will be understood that the pilot burner bracket can be constructed so that the flange 54 and the bracket 56 are integral with

one another. In this construction the bracket has horizontally disposed flanges at the upper and lower end having openings therein for receipt of the pilot burner.

It is to be understood that the invention in its broader aspects is not limited to the specific elements, constructions, arrangements and improvements shown and described, but also includes within the scope of the accompanying claims any departures made from such elements, constructions and arrangements and improvements which do not sacrifice the chief advantages thereof.

What is claimed is:

1. A supporting means for mounting a main gas burner in conjunction with a horizontally or vertically disposed pilot burner comprising: a universal header plate made of substantially flat sheet metal having an enlarged opening in which a bar type gas burner is mounted for horizontal disposition, means at one end of said header plate adapted thereof to mount a thermocouple element in a horizontal position, a pilot bracket made of sheet metal, means co-operating with said pilot bracket and said header plate for mounting said pilot bracket on said header plate in superposed contact, an aperture in said pilot bracket having the shape of a convex polygon and being adapted to receive a complementary shaped element on the main gas burner, and mounting means cooperating with said header plate for disposing a pilot burner adjacent the main burner.

2. A device as described in claim 1 wherein the last mentioned mounting means disposes said pilot burner in a horizontal position parallel to said main burner.

3. A device as described in claim 1 wherein the last mentioned mounting means disposes said pilot burner in a vertical position at right angles to said main burner.

4. A device as described in claim 1 including means cooperating with said aperture for positively positioning the main burner with respect to the pilot burner.

5. A supporting means for a main gas burner and a pilot burner comprising: a header plate made of substantially flat sheet metal, a pilot bracket made of substantially flat sheet metal, means for mounting said pilot bracket in superposed position on said header plate, a main gas burner, means on said header plate and said pilot bracket for mounting said main gas burner in a predetermined position, a mounting flange extending at right angles to said pilot bracket and disposed below said main burner adapted for mounting a pilot burner at right angles to said pre-determined position.

6. A supporting means for a main burner and a pilot burner comprising: a header plate made of substantially flat sheet metal, a pilot bracket made of substantially flat sheet metal, means for mounting said pilot bracket in superposed position on said header plate, a main gas burner, means on said header plate and said pilot bracket for mounting said main gas burner in a predetermined position, said pilot bracket having a portion extending above said main burner for mounting a pilot burner parallel to said pre-determined position.

7. A header plate adapted to cooperate with said pilot mounting plates for mounting a pilot burner at right angles to or parallel to a main gas burner comprising: a substantially flat sheet metal plate, said plate having a first section which is substantially rectangular, means in each corner of said rectangular section adapted to mount said plate on a stationary frame, means including a first aperture located in the approximate center of said rectangular section adapted to receive a main burner, and means including an aperture on diametrically opposed sides of said first aperture which cooperates with means on said pilot mounting plates to connect said plate to the pilot mounting plates to thereby mount a pilot burner either at right angles to or parallel to the main burner.

8. A supporting means for a main gas burner and a pilot gas burner comprising: a header plate made of substantially flat sheet metal, a pilot bracket made of substantially flat sheet metal, rivet means for connecting said

pilot bracket in superposed position on said header plate, an opening in said header plate adapted to receive a main gas burner, means on said header plate and said pilot bracket for mounting said main gas burner in a predetermined position, a recess in the end of said header plate, said pilot mounting bracket including a vertical portion extending upwardly and then at right angles into said notch, apertures in said bracket and said header plate for receiving a thermocouple element, and apertures in said header plate and said pilot mounting bracket for receiving a pilot burner disposed in parallel relationship with respect to said main burner.

9. A device as described in claim 8 wherein the opening in said header plate is adapted to receive a multi-sided portion of the main burner and wherein tongue and groove means co-operate to positively position said main burner with respect to said pilot burner.

10. A supporting means for a main gas burner and a pilot burner comprising: a header plate made of substantially flat sheet metal, a pilot bracket made of substantially flat sheet metal, rivet means for connecting said pilot bracket in superposed position on said header plate, an opening in said header plate adapted to receive a main gas burner, means on said header plate and said pilot bracket for mounting said main burner in a predetermined position, a flange at the lower end of said pilot mounting bracket extending at right angles thereto, said flange being adapted to mount a pilot burner at right angle to said main burner.

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CLAUDE A. LE ROY, *Primary Examiner.*