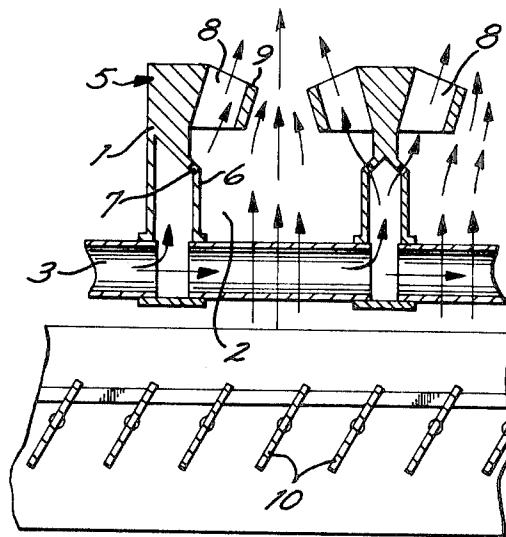


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 [21] Appl. No. **30,762**
 [22] Filed **Apr. 22, 1970**
 [45] Patented **Oct. 26, 1971**

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Attorney—Harold A. Dreckman

[54] **GAS BURNER FOR FUMES AND THE LIKE**
5 Claims, 5 Drawing Figs.
 [52] **U.S. Cl.**..... **23/277 C**,
 110/8, 431/162, 431/179, 431/354, 431/350,
 431/210, 431/174, 239/427.3, 239/590.5,
 239/433, 239/429, 239/425.5, 239/543
 [51] **Int. Cl.**..... **F23g 7/06**
 [50] **Field of Search**..... **23/277 C**;
 110/8 A; 431/160, 162, 179, 354, 347, 350, 210,
 174; 239/559, 427.3, 590.5, 433, 429, 425.5,
 417.5, 419, 543

ABSTRACT: This invention relates to a gas burner for mixing combustible industrial noxious fumes and vapors with gases and air for combustion in a furnace to thus reduce air pollution. The metal portions of the burner are constructed so that they will quickly burn out due to high temperatures within the furnace, and also so that these metal parts will be protected with a ceramic shield or blocks to prevent damage to the burners. My gas burner will materially reduce air pollution from industrial plants, packing houses, etc., which emit combustible and noxious vapors into the air, which can be readily burned when they are passed through a burner together with the natural gas and air which is burned in these devices.



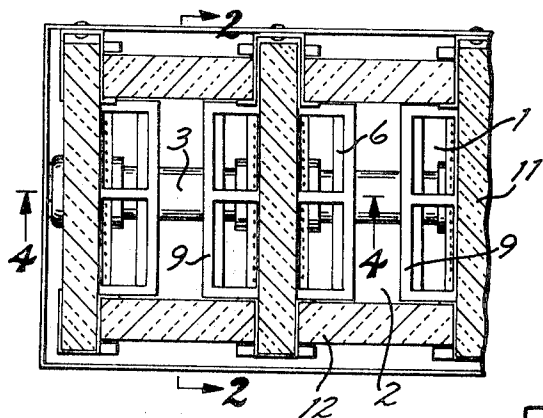


FIG. 1

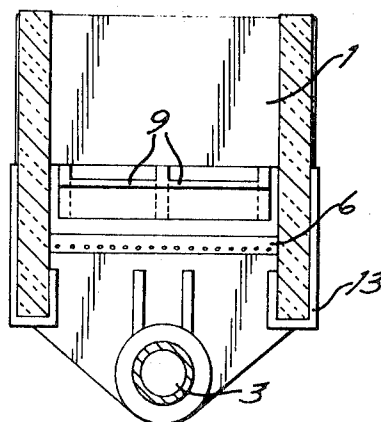


FIG. 2

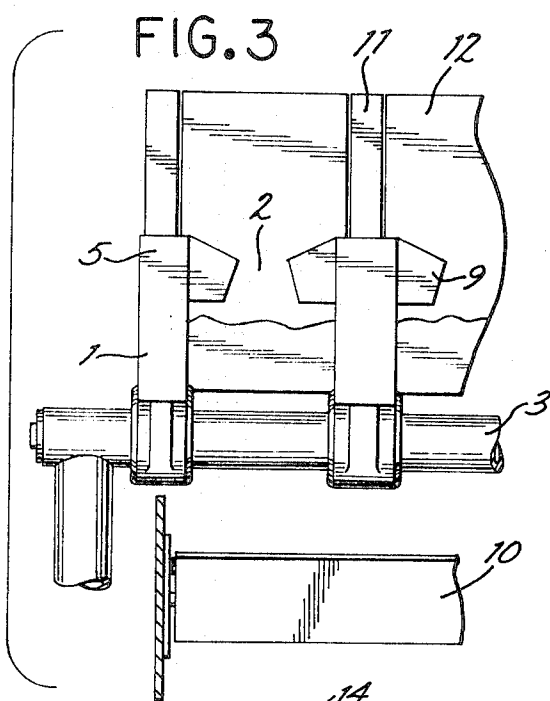


FIG. 3

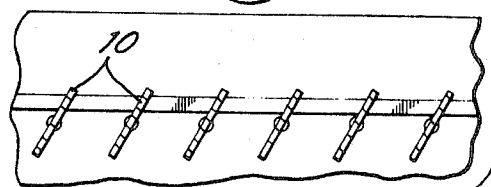
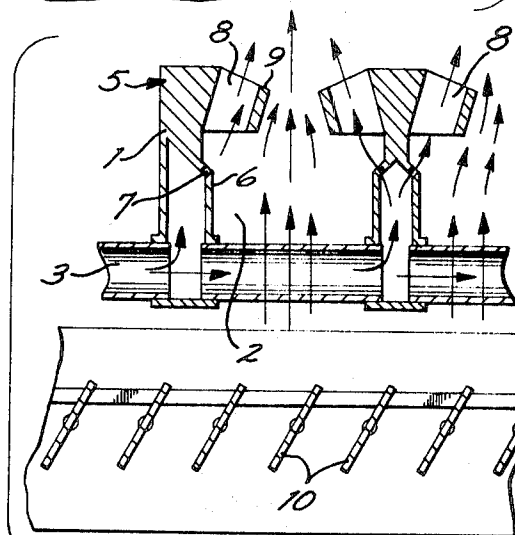


FIG. 4

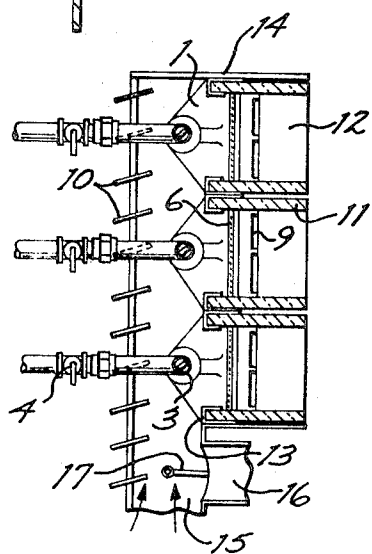


FIG. 5

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GAS BURNER FOR FUMES AND THE LIKE

An object of my invention is to construct the metal faces of the burner casting so that the intense heat of the furnace will not erode these metal parts.

Another object of my invention is to so construct the metal body of the burner that removable jets for the gas supply are not required, but drilled jets are adequate.

Still another object of my invention is to provide the metal body of the burner with a continuous shelf through which holes or jets can be drilled to admit gas to the flow of air through the burner.

Another feature of my invention resides in the shape and position of the shelf through which discharge orifices are drilled, this shelf being slanted downwardly so that the gas will be ejected outwardly through the rectangular-shaped loop cast integrally with the gas reservoir.

Another object of my invention is to so construct and shape the fuel burner that the force of the combustible gas and the air will draw adjacent noxious fumes through the loop, thus admitting additional air and fumes which are drawn through the space between two opposite loops, and will mingle with the gas and air mixture. This provides a more effective and complete mixture of fumes, air and gas.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claims.

In the drawing:

FIG. 1 is a bottom plan view of my burner.

FIG. 2 is a sectional view taken on line 2—2 of FIG. 1.

FIG. 3 is a fragmentary side elevation of my burner.

FIG. 4 is a sectional view taken on line 4—4 of FIG. 1.

FIG. 5 is a longitudinal side elevation of my burner.

Referring more particularly to the drawing, the invention consists partly in the construction of the hollow metal body 1, which is substantially rectangular in shape. A plurality of bodies 1 are arranged parallel to each other and spaced a suitable distance apart, as shown at 2. The space 2 permits adjacent noxious air to be drawn into the burner or furnace, as shown by the arrows in FIG. 4. The bodies 1 are connected by pipes or tubes 3 through which fuel is drawn. The pipes 3 which connect adjacent body portions 1 may be controlled by valves 4, as shown in FIG. 5. Thus the burners may be separately controlled, if desired.

The upper portions 5 of each of the bodies 1 are of a very substantial thickness, so that if they are exposed to the intense heat of the furnace that these body portions will not quickly burn out, and thus the life of the burner is materially increased. The body 1 of each burner is also formed with a downwardly inclined shelf 6 through which suitable jet holes 7 are drilled to admit a flow of gas into the space 2 between adjacent burners. The jets 7 direct the flow of gas inwardly, as shown by the arrows in FIG. 4, and the flow of gas is directed into the channel 8 which is formed between a web 9 and the body 1 of the burner, this web being integrally cast with the

body of the burner. The passages 8 thus serve to draw adjacent fumes and air into the burner and will move these gases inwardly to the area in which burning occurs above the burner, all of which is usual and well known. A plurality of pivotally mounted and adjustable louvers 10 may be provided to control the rate of flow of air into and through the burner.

In addition to the heavy body or heat shield 5, the burner faces are protected by firebricks 11 on the faces of each of the burner units, and also firebricks 12 on the ends of the burner assemblies. These firebricks are essentially rectangular slabs and fit into suitable shaped sockets 13 which are cast in the body of the burners. These firebricks serve to shield the metal parts of the burner from excessive heat of the furnace and are so positioned in the sockets or chambers 13 that they will not readily break or fall out of their proper protecting positions.

The burner assemblies may be mounted within a housing 14 and this housing forms an intake conduit 15 through which adjacent air, fumes and the like are drawn. A conduit 16 may also be provided to conduct air, fumes and the like directly to the furnace. The amount of air entering the area of the furnace or the burners is controlled by shutters 10 which are adjustable, as previously described. A damper 17 may direct the air and fumes to the area of the burner units, or directly into the furnace, as might be required.

Having described my invention, I claim:

1. A gas burner for fumes and the like comprising a hollow body, a gas intake pipe extending into the body, a plurality of discharge gas orifices in said body ejecting streams of gas outwardly, a web on said body and spaced from said orifices, said web being cast integrally with the hollow body, said web having a channel extending therethrough, through which fuel gas passes, said channel being offset from the body, a heat shield integral with said body, said heat shield being substantially heavier than the sidewalls of said body, said heat shield being formed on the outer face of said body.

2. A gas burner for fumes and the like as recited in claim 1 and consisting of a plurality of hollow bodies spaced apart, pipe sections extending between said bodies and providing a substantial opening between the pipe sections through which adjacent air and fumes pass to commingle with the air and fuel gas to permit combustion.

3. A gas burner for fumes and the like as recited in claim 1, a refractory block extending over the forward face of said body, and means detachably mounting said refractory block on the body.

4. A gas burner for fumes and the like as recited in claim 1 comprising horizontal refractory blocks between adjacent pairs of burner bodies, said last-named refractory blocks aligning the refractory blocks covering the forward face of the burner.

5. A gas burner for fumes and the like as recited in claim 1, a plurality of louvers adjacent said burners, and means pivotally mounting said louvers to permit adjustment thereof.