Jan. 13, 1931. W. B. ENSIGN ET AL 1,789,226

RIBBON BURNER

Filed Sept. 22, 1928

FIG. 1.

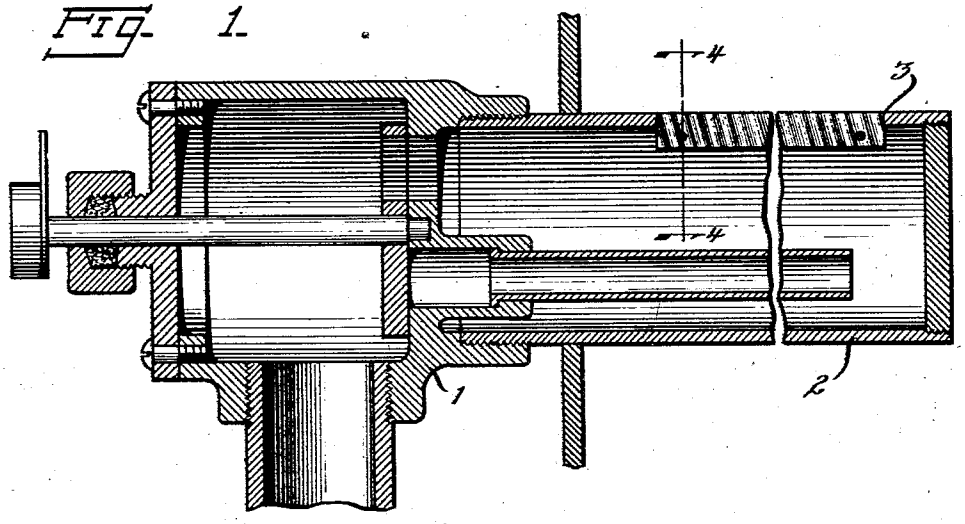


FIG. 2.

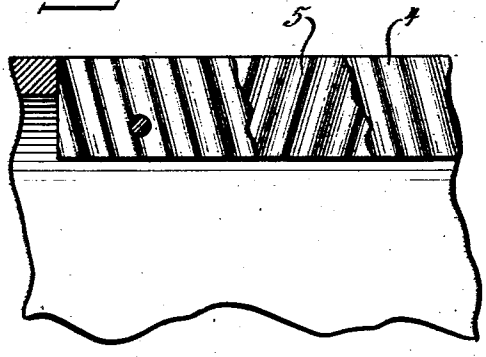


FIG. 3.

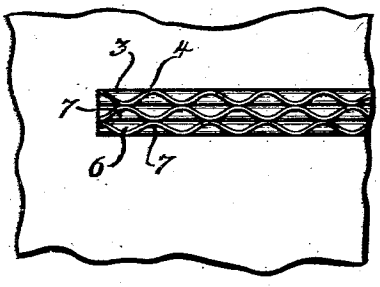
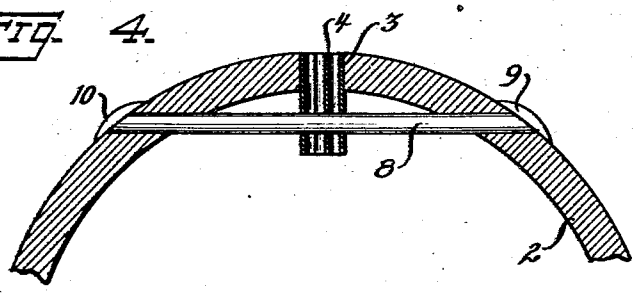


FIG. 4.



WITNESSES

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UNITED STATES PATENT OFFICE

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RIBBON BURNER

Application filed September 22, 1928. Serial No. 307,634.

This invention relates to gas burners, particularly to what is known as ribbon burners used in large furnaces, as, for instance, those used in bakeries, the object being to provide an improved burner structure which will present a desired flame, and which will not become extinguished readily.

Another object of the invention is to provide an improved burner, wherein the jet or opening for the gas is provided with means which will prevent the extinguishing of the flame by drafts and the like, even when the supply of gas is small.

A further object, more specifically, is to provide a burner wherein a plurality of corrugated distributing members are presented and arranged so as to divide the gas into small jets over a given area.

In the accompanying drawing—

Figure 1 is a longitudinal vertical sectional view through a burner disclosing an embodiment of the invention,

Figure 2 is an enlarged fragmentary view similar to part of the burner shown in Figure 1, said view illustrating the diagonal arrangement of the distributing plates,

Figure 3 is a top plan view of the structure shown in Figure 2,

Figure 4 is an enlarged fragmentary sectional view through Figure 1 on line 4—4.

Referring to the accompanying drawing by numeral, 1 indicates the burner as a whole. Burner 1 is provided with a pipe or gas-distributing tube 2 having a slot 3 therein extending from near one end to near the opposite end. This slot is very narrow and is the outlet for the gas. This slot may be fifteen feet long, or if desired, may be very short. Where it is long, it is difficult to distribute the gas properly and at the same time prevent the flame from going out when the gas has been turned down somewhat. To obviate these objections and others, the slot 3 is filled with a number of gas-distributing plates 4. These plates are preferably identical in structure and are preferably sufficiently numerous to snugly fill the slot 3, as shown in Figures 3 and 4. Each of these plates is corrugated for its full length, the corrugations 5 extending diagonally from one edge to the other, thus providing alternate grooves 6 and 7. When arranged in the slot 3 the plates are cut of a proper length to permit the groove 3 to come opposite the groove 7 of the next plate, thus presenting an almost circular discharge opening. In Figure 2 it will, however, be seen that the groove 6 on one plate extends at one angle and the groove 7 on the adjacent plate extends at the opposite angle. This arrangement will prevent any back-firing and will cause the flame to be maintained as long as any gas is furnished. As shown in Figure 3 only three plates 4 have been used. If desired, a large number could be used without departing from the spirit of the invention. In fact, a square or round burner opening could be provided and these plates used therein. However, when used in the burner disclosed, the plates are snugly arranged in the slot 3 and several holes are drilled therethrough and also through the tube 2, as shown in Figure 4. The rivet 8 extends through each group of holes and is preferably welded at the ends 9 and 10. In this way, the plates 4 are held in position and also the slot 3 is prevented from spreading during the use of the burner. The plates 4 are preferably made from a desired grade of metal and are preferably very thin, usually from one-fiftieth to one hundredth part of an inch thick. It will, of course, be evident that the plates could be of substantially any desired thickness and the grooves of any arc, but preferably the grooves are very small and the angle of the ridges 5 is not great, but sufficient to make the inlet opening of a groove offset slightly from the outlet opening.

What is claimed is:—

1. In a ribbon burner, a tubular member having a slot acting as the burner tip, and a filling structure arranged in said slot for dividing the gas escaping therefrom, said filling structure consisting of not less than two strips of corrugated metal in contact, with the corrugations at an angle other than 90° to the edges.

2. In a burner provided with an opening through which the gas is adapted to escape when burning and a plurality of corrugated plates arranged in said opening, and adapted

to expand and contract with the material in which the opening is formed and at the same time continually present small openings, each of said plates having the corrugations at an angle other than a 90° angle from the edges.

3. In a burner a plurality of plates at the discharge opening of the burner, said plates being formed with grooves on a bias and positioned so as to produce a large number of independent openings closely juxtaposed, each of said openings consisting of the ends of not more than two of said grooves.

4. In a burner a plurality of contacting gas dividing plates, each plate presenting a ribbon formation corrugated throughout with the corrugations extending from one longitudinal edge to the other longitudinal edge at an angle other than a right angle.

5. A gas burner having in combination, a burner tube, said tube being formed longitudinally in one side thereof with an elongated slot, a corrugated strip in said slot and forming jet passages therewith, said strip extending into said tube, and a plurality of spaced tie members extending laterally through said tube and said strip to hold said strip in position and the sides of said slot against said strip.

6. A gas burner having in combination, a burner tube adapted to receive gas, said tube being formed longitudinally in one side thereof with an enlongated slot, means in said slot defining a plurality of jet passages along said slot, said means extending into said tube, and a plurality of spaced tie members extending laterally through said tube and said means to hold said means in position and the sides of said slot against said means.

7. A gas burner having, in combination, a hollow burner member adapted to receive gas, said member being formed with an elongated slot, corrugated means in said slot defining a plurality of jet passages therewith, said means extending laterally into said member, and a plurality of spaced tie members extending laterally through said member and said means to hold said means in position and to hold the sides of said slot against said means.

8. A ribbon burner, comprising means forming a slot through which gas is adapted to escape when the burner is in use, a plurality of plates maintained in said slot, and rivets extending through said plates for holding the plates in position and for preventing lateral enlargement of said slot due to expansion of the material in which the slot is formed, each of said plates being corrugated with the corrugations extending at an angle other than a right angle to the edge of the plate, the entire surface of each plate being corrugated whereby small openings are provided in the slot through which the gas is adapted to pass.

9. In a gas burner, a gas distributing jet comprising a plurality of plates arranged in a slot, each of said plates being corrugated throughout, their respective corrugations being at an angle other than a right angle to the edge of the plate and extending from one longitudinal edge to the opposite longitudinal edge, the adjacent plates being positioned so that the corrugations on the respective plates will be oppositely inclined.

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