Feb. 22, 1927. 1,618,269

S. A. D. COX

GAS BURNER DEFLECTOR

Filed Dec. 16, 1925

Fig. 1

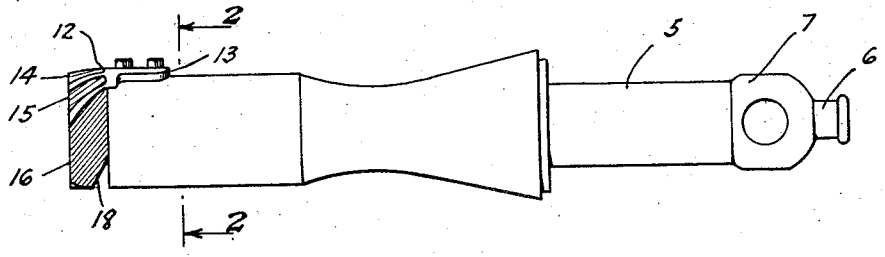


Fig. 2

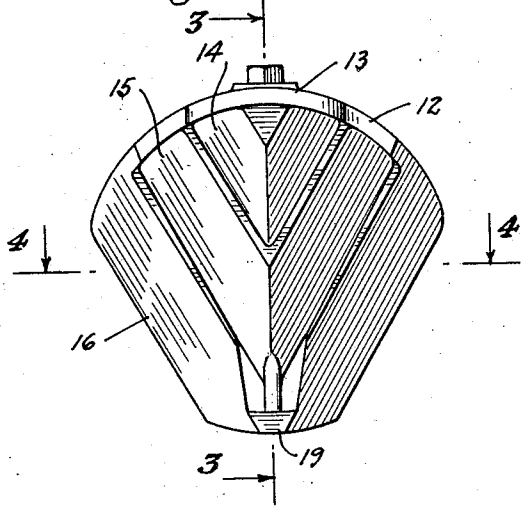


Fig. 3

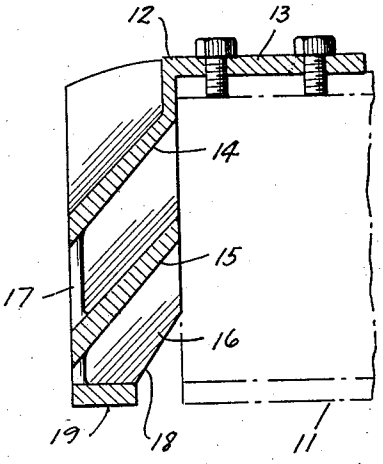
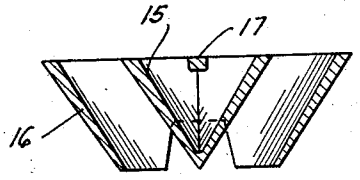


Fig. 4



INVENTOR.
Stephen A. D. Cox
BY Westall and Wallace
ATTORNEYS.

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UNITED STATES PATENT OFFICE.

STEPHEN A. D. COX, OF HUNTINGTON BEACH, CALIFORNIA.

GAS-BURNER DEFLECTOR.

Application filed December 16, 1925. Serial No. 75,722.

This invention relates to a gas or vapor burner, and pertains more particularly to a device for directing the inflammable mixture or flame so as to spread the latter. It is common practice to employ a gas or vapor burner for heating boilers of comparatively large capacity. In order to distribute the heat of combustion over a larger surface of the boiler, it is desirable to spread the flame in the fire box or furnace. The present invention has for its primary object the provision of a burner having an efficient flame spreader which is not subject to destruction by the heat of the flame. In addition to the broader objects of this invention, there are certain details of design whereby economy, compactness, simplicity and durability of structure are obtained.

These objects together with other objects and corresponding accomplishments are obtained by means of the embodiment of my invention illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation of a complete burner with a deflector mounted thereon; Fig. 2 is a front view of the burner and deflector on an enlarged scale; Fig. 3 is a section as seen on the line 3—3 of Fig. 2; and Fig. 4 is a section as seen on the line 4—4 of Fig. 2.

Referring more particularly to the drawing, a burner of a specific type is shown for illustrative purposes, the details thereof not being pertinent to the present invention. However, the burner comprises a tubular member 5 to which a jet of gas or inflammable vapor is delivered through a nozzle tube 6 connected to the source of supply. An enlargement 7 with air holes is provided so that air is induced and mixed with the gas as it leaves the jet 6 and enters the tubular member 5, the latter constituting a mixing chamber. The mixture is delivered through a jet into a conical chamber 8 inducing air through openings in the base of the conical member indicated by 9. Thus, further air is mixed with the gas. There is a constriction 10 in the nozzle end of the burner, to cause a relatively high velocity of the gas and thereby prevent backfiring. The burner ends in the tubular nozzle portion 11. The burner just described is broadly of the same character as that disclosed in Patent 1,472,554, granted to me October 30th, 1923, except for the constriction.

The inflammable mixture passes from the nozzle 11, and would issue in a stream unless spread. I have provided a deflector in front of the nozzle discharge opening for the purpose of spreading the gases. The deflector comprises a curved web 12 conforming in curvature to the curvature of the nozzle 11. This web has extending therefrom a foot 13 whereby it may be secured to the nozzle. The web connects the bases of a series of sets of intersecting blades which form dihedral angles, the dihedral sets being indicated by 14, 15, and 16. The apices of the angles are joined by a web 17. The apex of the dihedral set 16 is cut away as indicated by 18 and a nose 19 is provided. Thus, there is provided a series of dihedral sets nested within one another and with their lines of intersection disposed at an angle to the axis of the nozzle of the burner.

In the construction shown, the mixture issuing from the nozzle engages the walls of the blades being directed laterally and downwardly upon the furnace floor. The construction is such as to spread the flame in fan formation. Normally, ignition of the flame occurs beyond the deflector and the latter is not subjected to the high temperature of the burning mixture. Thus, the durability of the deflector is increased.

What I claim is:

1. The combination with a burner having a discharge opening of a deflector, said deflector comprising walls intersecting to form a set of dihedral angles nesting within one another, the lines of intersection of said walls being disposed at angles to the direction of the flow of the stream issuing from said opening.

2. The combination with a burner having a discharge opening of a deflector disposed in the stream issuing from said opening said deflector comprising walls intersecting to form a set of parallel dihedral angles nesting within one another, the lines of intersection of said walls being disposed at angles to the direction of flow of the stream issuing from said opening.

3. The combination with a burner having a discharge opening of a deflector disposed in the stream issuing from said opening, said deflector comprising walls intersecting to form a set of dihedral angles nesting within one another, the lines of intersection of said walls being disposed at angles to the

direction of flow of the stream issuing from said nozzle, and a web joining the bases of said planes and having an attachment foot extending therefrom.

4. A deflector comprising sets of blades intersecting to form parallel dihedral angles nesting within one another, a curved web joining the bases of said blades and having an attachment foot extending therefrom.

In witness that I claim the foregoing I have hereunto subscribed my name this 8th day of December, 1925.

STEPHEN A. D. COX.