April 13, 1926. **1,580,995**

W. P. CAPPS

GAS BURNER

Filed Oct. 31, 1924 2 Sheets-Sheet 1

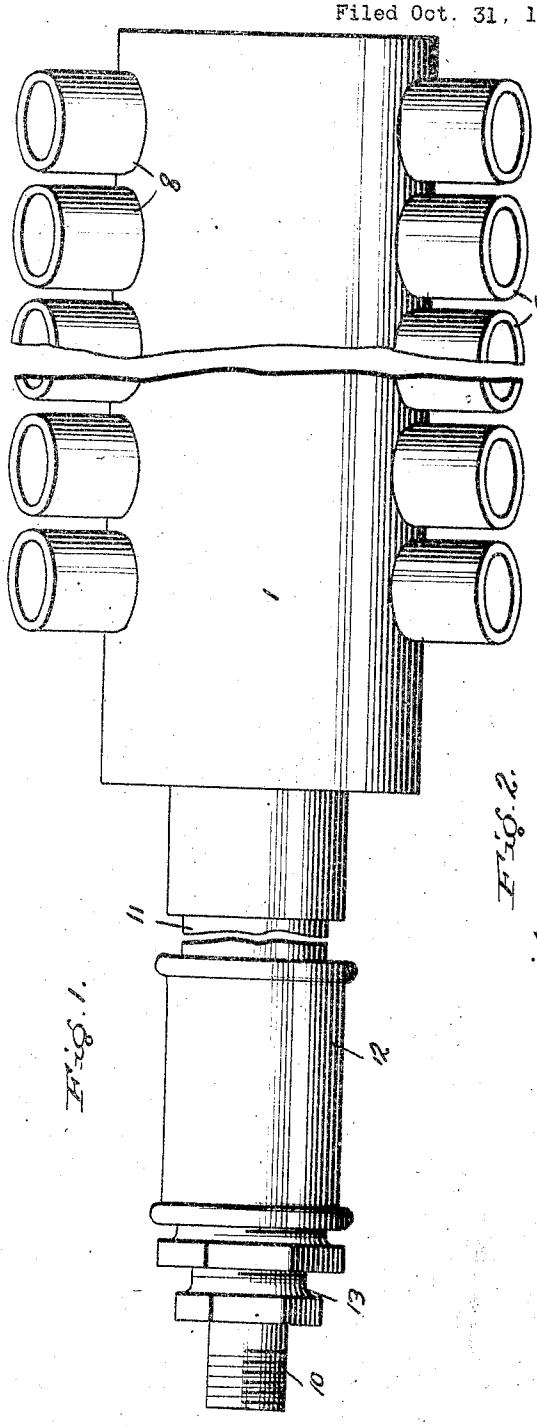


Fig. 1.

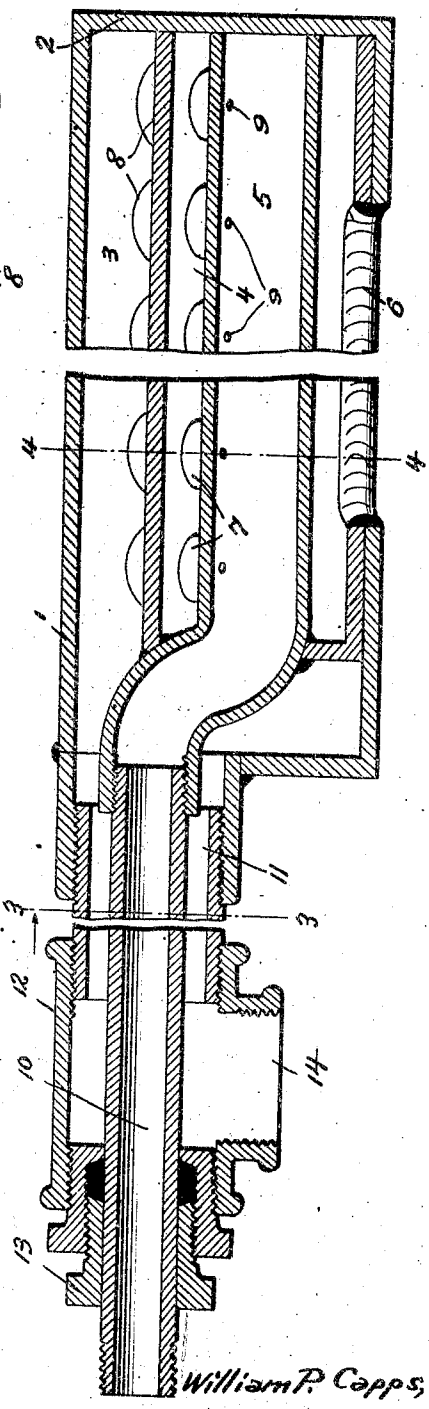


Fig. 2.

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WITNESS: Gerald Hemmes

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Fig. 3.

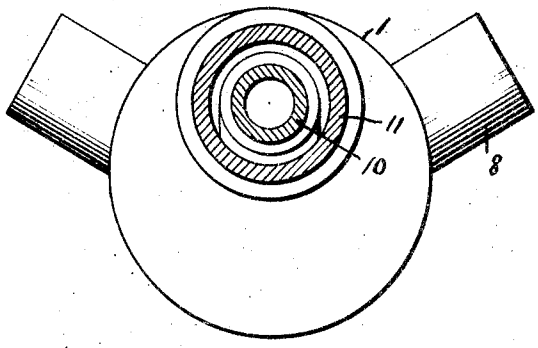
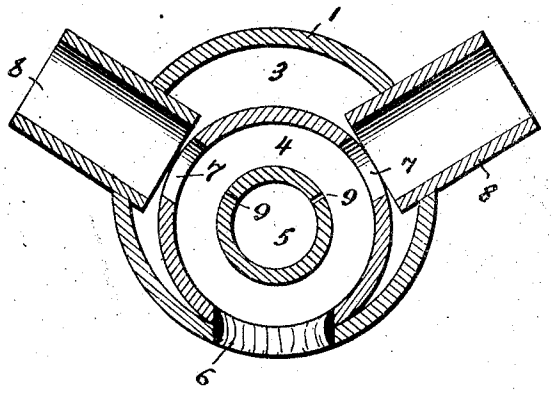


Fig. 4.



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Patented Apr. 13, 1926. 1,580,995

UNITED STATES PATENT OFFICE.

WILLIAM P. CAPPS, OF SHREVEPORT, LOUISIANA.

GAS BURNER.

Application filed October 31, 1924. Serial No. 747,096.

To all whom it may concern:

Be it known that I, WILLIAM P. CAPPS, a citizen of the United States, residing at Shreveport, in the parish of Caddo and State of Louisiana, have invented new and useful Improvements in Gas Burners, of which the following is a specification.

The general object of my present invention is the provision of a gas burner designed more particularly for oil field type boilers.

Other objects and practical advantages of the invention will be fully understood from the following description and claims when the same are read in connection with the drawings, accompanying and forming part of this specification, in which:—

Figure 1 is a top plan view of the burner constituting the preferred embodiment of my invention, said view being broken.

Figure 2 is a longitudinal vertical section of the burner.

Figures 3 and 4 are transverse sections taken in the plane indicated by the lines 3—3 and 4—4, respectively, of Figure 2.

Similar numerals of reference designate corresponding parts in all of the views of the drawings.

My novel burner includes a body 1 of appropriate metal and appropriate shape, the said body being closed at one end as designated by 2 and containing a main gas compartment 3, and air space 4 and a steam conduit 5. By preference the gas compartment 3, the air space 4 and the steam conduit 5 are relatively arranged as best shown in Figure 4, the air space 4 surrounding the steam conduit 5 and being partly surrounded by the gas compartment 3. An opening 6 is provided in the outer portion of the body and in communication with the air space 4 for the entrance of atmospheric air which is designed to adequately support combustion and at the same time lessen the liability of the burner being unduly heated. In the wall of the air space 4 are ports 7, and these ports 7 are in alignment with nipples 8, preferably arranged in two series and with the nipples of each series at about the angle illustrated to the nipples of the other series. The said nipples 8 are appropriately fixed in the outer wall of the gas compartment 3 and are designed to receive gas from said compartment 3 and air from air space 4. It will also be noted that the steam conduit 5 is provided with minute apertures 9 in its wall, said apertures 9 being substantially in alinement with the centers of the ports 7 and nipples 8.

A pipe 10 is connected to one end of the steam conduit 5, and a union 11 to one end of the gas compartment 3, said union 11 being connected in turn with a T-coupling 12 the outer end of which is closed by an appropriate stuffing box 13. One arm of the T-coupling 12 is designed to be connected with an appropriate source of gas supply, and the pipe 10 is designed to be connected with an appropriate source of steam supply. I would have it understood, however, that my novel burner is adapted to operate efficiently on either high or low gas pressure, the embodiment illustrated is a burner of the steam jet type, but a cold boiler may be fired through the medium of the said burner without the assistance of steam. This will be better understood when it is stated that connections may be made so that gas will first pass through the pipe 10 and the conduit 5, the arm 14 of the T-coupling 12 being at that time closed. In this use of the burner after a few pounds of steam is raised in a boiler the arm 14 is opened, and the supply of gas to the pipe 10 is cut off and the proper amount of steam is permitted to pass through the pipe 10 for combustion of gas to the best advantage. The nipples 8 manifestly may be made of any desired length.

It will be apparent from the foregoing that my novel burner is adapted to operate on very low pressure and does not require a baffle of any kind, the low pressure gas being designed to enter through the arm 14 of the coupling 12 and to pass from the compartment 3 to the nipples 8. The steam is jetted through the apertures 9 to induce draft and to promote combustion. The opening 6 at the bottom of the burner provides for the passage of an ample amount of air through the burner with the result that combustion is adequately promoted and at the same time the burner is maintained in a comparatively cool state. I would also have it understood that my novel burner does not require a brick baffle or target of any description and that it is quiet in operation.

In addition to the advantages ascribed to my novel burner it will be manifest that the burner is simple and inexpensive and is well adapted to withstand the usage to which devices of corresponding character are ordinarily subjected.

I have specifically described the preferred embodiment of my invention in order to impart an exact understanding of said embodiment. I do not desire, however, to be understood as confining myself to the structure disclosed herein, my invention being defined by my appended claims within the scope of which changes may be made without involving departure from my invention.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:—

1. A burner including a steam conduit having jet apertures in its wall, an air chamber entirely surrounding the steam conduit and having ports in its wall in alignment with said jet apertures and a gas compartment partly surrounding the air chamber and having nipples in communication with the interior thereof and arranged opposite the jet apertures and the ports in the wall of the air chamber, the said air chamber having an opening for the entrance of air, said steam compartment and gas compartment being closed at one end and provided at their opposite ends with conduit connections.

2. A burner including a steam conduit having jet apertures in its wall, an air chamber entirely surrounding the steam conduit and having ports in its wall in alignment with said jet apertures, a gas compartment partly surrounding the air chamber and having openings therethrough, nipples positioned in the last mentioned openings with their inner ends resting on the air chamber and having communication with the ports therein and also communicating with the gas compartment, said nipples being disposed opposite the jet apertures, the said air chambers having an opening for the entrance of air and the steam compartment and gas compartment being closed at one end and being provided at their opposite ends with conduit connections.

In testimony whereof I affix my signature.

WILLIAM P. CAPPS.