W. E. BATTON.

VACUUM GAS BURNER.

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1,126,939.

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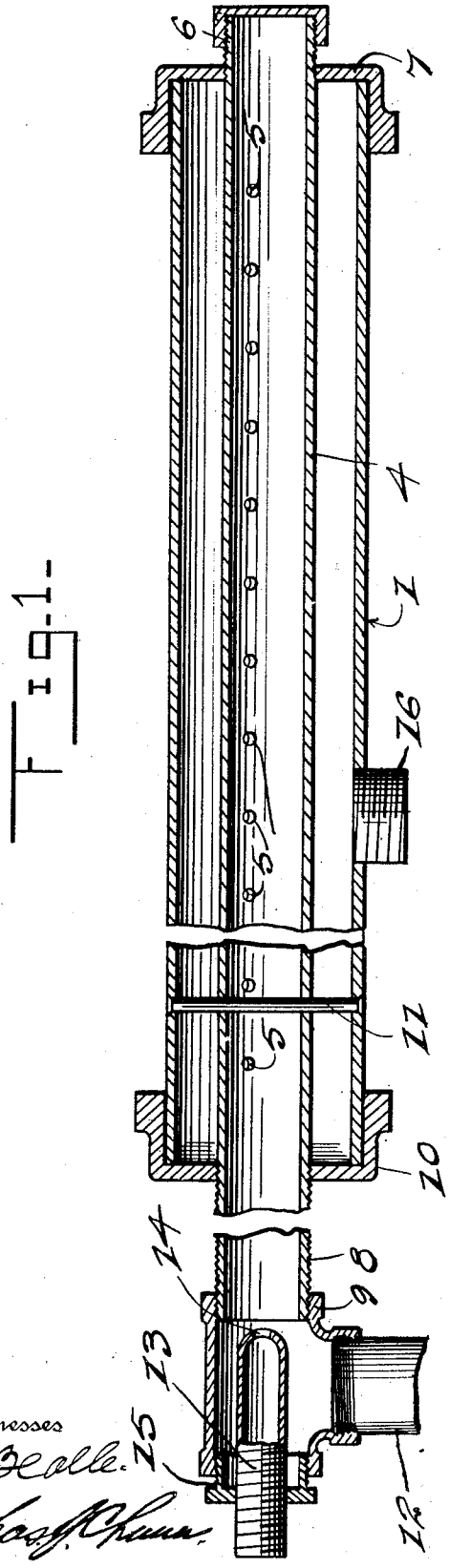


Fig. 1.

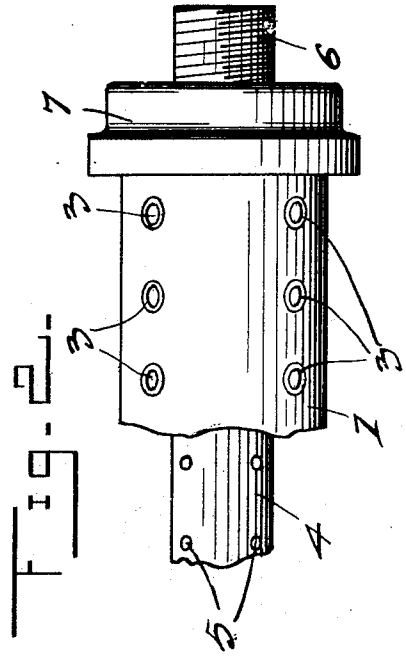


Fig. 2.

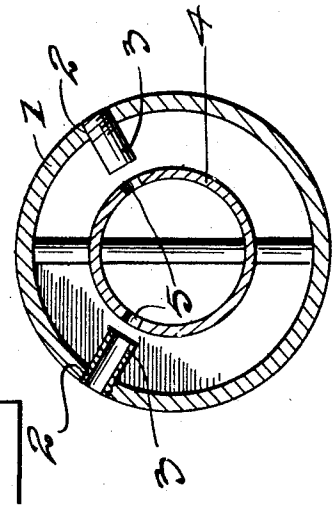


Fig. 3.

Witnesses

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VACUUM GAS-BURNER.

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To all whom it may concern:

Be it known that I, WILLIAM E. BATTON, a citizen of the United States, residing at Mooringsport, in the parish of Caddo and State of Louisiana, have invented certain new and useful Improvements in Vacuum Gas-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in gas burners for furnaces and the like and has for its primary object to provide a burner in which the flame is not liable to become extinguished and which will consume a comparatively small amount of gas but provides an intense heating flame, producing uniform heat at all times.

Another object is to generally improve and simplify burners of the character described so as to render them more practical, reliable and efficient in operation, easy to assemble and disassemble and inexpensive to manufacture.

The above and additional objects are accomplished by such means as are illustrated in the accompanying drawing, described in the following specification and then more particularly pointed out in the claims.

With reference to the drawing, wherein I have illustrated the preferred embodiment of my invention as it is reduced to practice, and throughout the several views of which similar reference numerals designate corresponding parts, Figure 1 is a longitudinal sectional view taken through my improved burner, Fig. 2 is a fragmentary plan of the burner, and Fig. 3 is a cross sectional view taken through the burner.

Referring to the drawing by characters of reference, 1 designates as an entirety a cylindrical burner pipe or tube that is provided on opposite sides thereof and adjacent to its upper face with a series or rows of internally threaded apertures 2. Mounted within these apertures is a plurality of short radial mixing tubes 3. These tubes 3 are arranged so that their outer ends are practically flush with the outer surface of the burner tube 1 and so as to extend into the tube 1 toward the center thereof. The tubes 3 in being screw threaded may be readily removed when desired for the purpose of cleaning them. Mounted within the burner tube or pipe 1 is a pipe 4 of considerably less diameter than the tube 1 and which is provided on opposite sides thereof with a row of series of apertures 5 that are arranged to aline with the inner ends of the radial mixing tubes 3. Screw threads 6 are formed on the outer end of the pipe 4, which outer end projects beyond the outer end of the tube 1, and mounted upon said screw threads 6 is a flanged closure cap 7 for the tube 1, the flange of which engages upon the outer face of the tube at the outer end thereof. The other end of the pipe 4 is extended beyond the inner end of the tube 1 and is provided with screw threads 8. Turned upon the screw threads 8 is a T coupling member 9. A flanged closure cap 10 similar to the one 7 is mounted upon the screw threads 8 and engages the inner end of the tube 1 as does the cap 7. To insure the tube 1 and pipe 4 remaining in a substantial cooperative position a pin 11 is inserted through the tube and pipe respectively and is disposed flush with the outer face of the tube 1. Turned in the lower coupling element of the T coupling 9 or in the shank element of the coupling is a gas inlet pipe 12 that is connected with a suitable source of fuel supply (not shown). Extending into the coupling through the end thereof opposite to the end in which is turned the screw threaded end 8 of the pipe 4 is an air or steam injecting nozzle 13 that is provided with a restricted discharge end or opening 14 and is externally screw threaded so as to be mounted within an adjusting nut 15 that is turned within the coupling 9. This nozzle 13 is connected with a suitable source of air or steam supply and because of its restricted opening 14 injects steam or air as the case may be into the pipe 4.

Screw threaded within an opening in the lower part of the tube 1 is a short externally screw threaded coupling member 16 which may be connected with an air supply pipe (not shown) for the purpose of supplying air to the tube 1.

In operating the burner, the gas is turned on, then the air or steam. When the burner is sufficiently heated, the air or steam is regulated to provide the proper mixture. The gas and air mixture is injected from the openings or apertures 5 into the radial mixing tubes 3 and from thence to the under part of the article to be heated, preferably a boiler. The inclination of the members 3, causes direction of the flames so that they

will spread upon the entire under surface of the boiler and provides an efficient heating thereof. The air admitted in the tube 1 supplies sufficient air to prevent the flame from being extinguished.

With reference to the foregoing description and accompanying drawing, it will be readily observed that I have provided a burner in which the parts are assembled so that they may be readily removed for the purpose of changing them or renewal thereof. The arrangement of radial mixing tubes 3, in combination with the tubes 1 and 4 and apertures 5, provides a combustible mixture that will produce a substantially hot flame and will not consume a great amount of fuel. The pipe 13 provides a vacuum to supply the burner with fuel.

In practice, I have found that the form of my invention, illustrated in the drawings and referred to in the above description, as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of my device will necessarily vary, I desire to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be resorted to, when required, without sacrificing any of the advantages of my invention, as set forth.

What is claimed is:—

1. In a gas burner, a burner tube formed with a series of holes near its top, a pipe of less diameter than the tube mounted within said tube and provided with a series of holes near its top alining with said first named holes, radial mixing tubes detachably mounted within the first named holes and extending toward the pipe, said tubes having their outer ends flush with the outer surface of said burner tube, said burner tube having its ends closed, said pipe extending through the closed ends, a steam or air injecting pipe communicating with said pipe, a gas feed pipe communicating with said first named pipe and said tube having an air inlet intermediate its ends.

2. A gas burner comprising a burner tube formed with a series of openings therein and having a pipe of less diameter than the tube mounted within said tube and provided with a series of openings therein alining with the openings in the tube, said tube having closed ends, said pipe extending through said ends, the outer end of said pipe being open and communicating with the atmosphere and said tube having an air inlet intermediate its ends.

3. A gas burner comprising a burner tube formed with a series of openings, a pipe of less diameter than the tube mounted within said tube and provided with a series of openings which aline with the first named openings, radial mixing tubes secured within the first named openings and extending toward the pipe, said burner tube having its ends closed and steam or air injecting pipes communicating with said pipe, a gas feed pipe communicating with said pipe and said tube having an air inlet intermediate its ends.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM E. BATTON.

Witnesses:
W. L. Todd,
N. C. McGowen.