

APPLICATION FILED FEB. 19, 1916.

2 SHEETS—SHEET 1.

Fig. 7.

Attorney

Fig. 2.

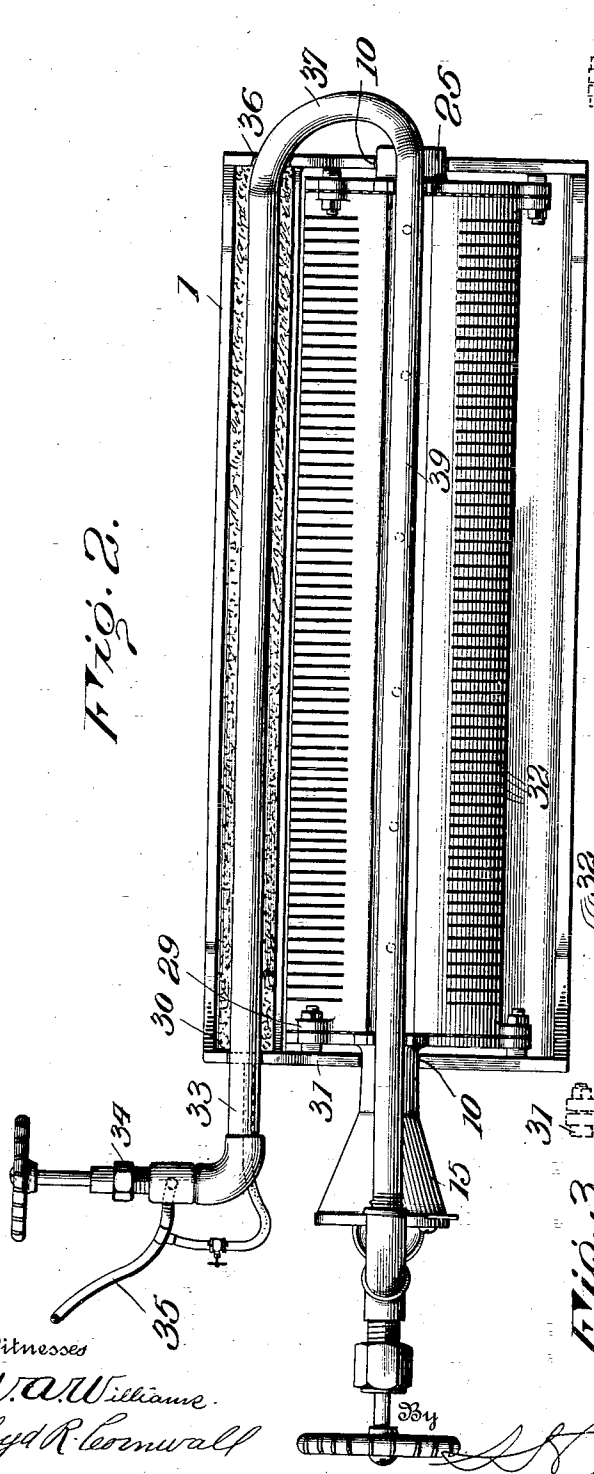
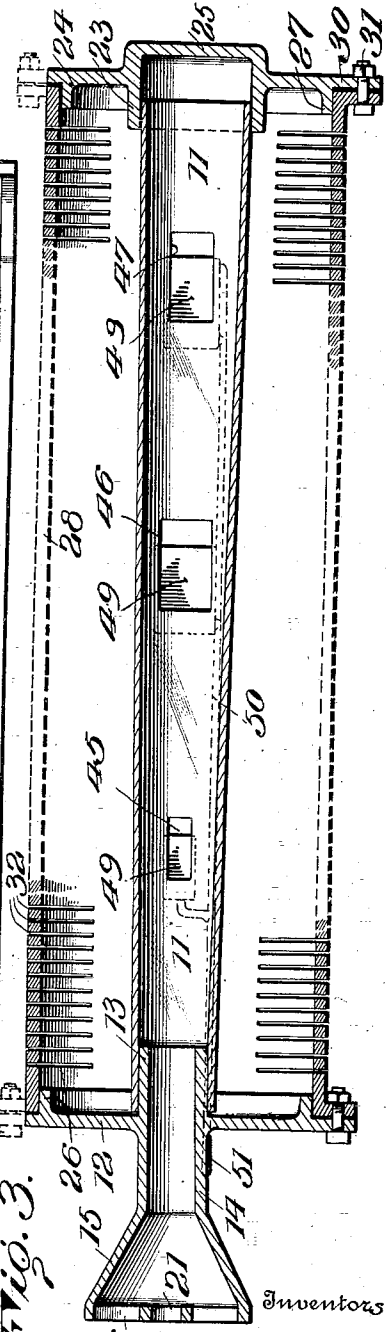


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES D. GOODWIN AND GROVER C. GOODWIN, OF RICHMOND, VIRGINIA, ASSIGNORS
TO VIRGINIA HEATING CORPORATION, OF RICHMOND, VIRGINIA.

OIL-BURNER.

1,189,094.

Specification of Letters Patent.

Patented June 27, 1916.

Application filed February 19, 1916. Serial No. 79,411.

To all whom it may concern:

Be it known that we, JAMES D. GOODWIN and GROVER C. GOODWIN, citizens of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Oil-Burners, of which the following is a specification.

Our invention relates to new and useful improvements in burners.

The object of our invention is to provide a retort burner in which the oil is more readily converted into gas and more evenly distributed throughout the burner tube, so that better combustion is obtained and in which there is practically no odor due to the waste of oil.

Another object of our invention is to provide a burner of this character, in which the oil is more readily converted into gas without unduly heating the generating pipes and having means whereby the gas pressure can be easily controlled, so as to obtain the proper mixture of air and gas to cause more perfect combustion.

A still further object of our invention is to provide a burner of this character which is complete in itself and can be readily applied at any place desired to be heated.

These and other objects will in part be obvious and will in part be hereinafter more fully described.

In the accompanying drawings: Figure 1 is a perspective view of an ordinary cook stove, showing our invention applied thereto; Fig. 2 is a top plan view of our improved retort burner; Fig. 3 is a horizontal sectional view of Fig. 2; Fig. 4 is a vertical sectional view taken at right angles to Fig. 3.

Referring now to the drawings, 1 represents the base of our improved burner, which, as shown, is of an elongated trough-like form, having at each end the legs 2 and 3 by means of which it is supported upon the grate or the bottom of any receptacle in which the burner is to be placed. The bottom 4 of the trough is of an irregular form, gradually curving toward one side, and provided adjacent its lower side with a vertical partition 5 forming a trough 6 which extends the entire length of the base. This trough is preferably filled with asbestos wool and forms a wick for starting the burner, as will be later described. The partition 5 is provided with openings 7 to allow

any oil that may leak from the burner to pass downwardly into the trough where it is absorbed by the asbestos wool. The bottom 4 of the base is provided with a trough 6' directly below the generator and like the trough 6 has asbestos wool therein, and serves as an additional heater.

The upper edges of the ends 8 and 9 of the base 1 are provided with curved recesses 10 and in which rests the distributing tube 11, by which it is supported. At one end of the distributor tube is a head 12, which has at its center an inwardly extending cylindrical member 13 entering the tube 11. The head 12, on the outside thereof, is provided with an outwardly extending cylindrical member 14 in alinement with the cylindrical member 13, and provided at its outer end with the enlarged mixing chamber 15. The mixing chamber has at its end a series of openings 16, and the passage of air therethrough is regulated by the shutter 17, which is oscillated on the mixing chamber and provided with openings 18, corresponding with the openings 16. The shutter is held upon the mixing chamber 15 by means of the screw 19, and operated by means of the handle 20. The center of the shutter, and also the end of the mixing chamber is provided with an opening 21 through which the gas supply pipe 22 extends, as will be later described.

The opposite end of the tube 11 enters an inwardly extending cylindrical portion 23 carried by the head 24. This supporting head is provided at its center with an outwardly extending cylindrical portion 25 which rests in the semi-circular recess 10 in the end 9 of the base 1. The tube 11, as shown in Fig. 3, extends but a slight distance within the cylindrical portion 23 of the head 24, and the head 24 being rigidly supported allows for the expansion of the tube 11 independently of the head. The heads 12 and 24, adjacent their outer periphery, are provided with inwardly extending annular flanges 26 and 27 which extend within the outer burner tube 28. The burner tube 28 is provided at intervals around its periphery with outwardly extending lugs 29 arranged opposite the lugs 30 carried by the heads 12 and 24 and the said lugs are locked together by means of the bolts 31. By this structure it will be seen that the burner tube 28 is clamped to the heads 12

and 24 and the distributing tube is supported concentrically therein, as fully shown in Fig. 3 of the drawings. The burner tube 28 is provided with a series of slots 32, which allows the gas to pass therefrom and to burn. While we have shown the gas discharge from the burner tube in the form of slots, it will be understood that any form of openings could be used without departing from my invention.

Extending longitudinally of the base 1 within the trough 6, is the retort tube 33, which has at its outer end a valve 34 and an oil supply pipe 35. By this valve, it will be seen that the amount of oil fed to the retort tube may be readily controlled. The opposite end of the retort tube 33 extends through an opening 36 in the base 1 and is curved upwardly at 37 and rests in a semi-circular recess in a lug 38 carried by the end of the base and said tube is extended forwardly at 39 parallel with the burner tube 28 a slight distance thereabove. The forward end of the tube 39 has a downwardly extending portion 40 which communicates with a pipe 41 and is connected to the pipe 22 extending into the mixing chamber 15. The supply of gas from the retort tube 39 to the tube 22 is controlled by the valve 42. The burner tube 28 below the retort tube 39 has a longitudinally depressed portion 43 and is provided with openings 44 to allow for a small flame below the retort tube for heating the same.

The mixing tube 11 is provided in its lower face with three openings 45, 46 and 47. The opening 46 at the center is the larger, the opening 47 the next larger and the opening 45 the smallest. These openings are to allow the gas to pass therefrom to the burner tube 28. Surrounding the opening on the lower face of the distributing tube 11 are guideways 48, in which are arranged the slides 49, by means of which the size of the openings for the discharge of the gas may be regulated. Connected to the slides 49 is a rod 50 which extends outwardly through the head 12 and is provided with a handle 51, by means of which the slides may be operated from the outside. The tube 11, as shown in Fig. 3 of the drawings, is of a tapering form gradually increasing in diameter toward its rear end, so that the gas will be more evenly distributed from the tube 22 and thus cause an even supply of gas to the burner tube 28.

In the operation of the device the valve 34 is first opened allowing the oil to pass from the tube 35 to the retort tube 33. A certain amount of oil having previously been placed in the trough 6 and ignited, the tube 33 has become heated and the oil is converted into gas. The gas passes upwardly through the curved portion 37 to the tube 39, and is more thoroughly heated

producing a more combustible gas. The gas passes downwardly from the retort tube 39, through the valve 42, to the tube 22. From the tube 22 it is injected into the tube 11 drawing the necessary amount of air through the openings 16. The mixture passes downwardly through the openings 45, 46 and 47 into the burner tube 28 from which it is discharged through the openings 32 and is burned. Any oil which may not have been converted into gas which passes downwardly through the tube 40 would drip down from around the shutter 17 and enter the cup 52 supported by the tube 53 which extends inwardly and communicates with the curved bottom of the support 1. Thus it will be seen that any oil that is not vaporized in the retort tube will pass to the trough 6 and be absorbed by the asbestos wool and there will be no odor therefrom. By the construction and arrangement of the several parts, it has been found that the oil is more readily converted into gas and the gas properly mixed with air to form a more combustible gas and almost entirely dispenses with any odor which usually exists in retort burners of this kind. By the specific arrangement of the burner tube and the mixing tube either one can expand to a greater extent than the other without causing any twisting of either.

Connected to the oil supply pipe 35 is a pipe 35' which extends downwardly to the generating pan for starting the burner. Backfiring in the tube 11 is prevented by the taper thereof which allows for the expansion of the gas.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. A burner of the character described comprising a burner tube having discharge openings therein, a distributing tube loosely supported within the burner tube and gradually increasing in diameter toward its rear end, said distributing tube having discharge openings in its lower face, and means for varying the size of said discharge openings.

2. A burner of the character described comprising a burner tube having discharge openings therein, a distributing tube loosely supported within the burner tube and gradually increasing in diameter toward the rear end, said distributing tube having discharge openings in its lower face, means for varying the size of said discharge openings, a retort pipe extending along the side of the burner tube and upwardly and forwardly above the center of the burner tube and communicating with the distributing tube, means for supplying oil to the retort pipe, and means for controlling the oil supply to said pipe and the gas supply from the retort pipe to the distributing tube.

3. A burner of the character described comprising a burner tube having discharge openings therein, a distributing tube loosely supported within the burner tube and gradually increasing in diameter toward its rear end, said distributing tube having discharge openings in its lower face, slides controlling said discharge openings, a rod for moving said slides, a retort pipe extending along the side of the burner tube and upwardly and forwardly over the center of the burner tube and communicating with the distributing tube, an oil supply for the retort pipe, means for controlling said oil supply, and means for controlling the gas supply from the retort pipe to the distributing tube.

4. A burner of the character described comprising a burner tube having openings therein, a head removably secured to each end of the burner tube and closing the same, a tapering distributing tube loosely supported concentrically within the burner tube by the said heads, and having a longitudinal movement independently of the burner tube, said distributing tube having gas discharge openings in its lower face, means for controlling said openings, and means for supplying gas to one end of the distributing tube.

5. A burner of the character described comprising a base of a trough-like form having a narrow trough arranged in one side and extending the entire length thereof, a burner tube supported by the upper edge of the base and having gas discharge openings, a distributing tube concentrically arranged within the burner tube and loosely supported thereby and having gas discharge openings in its lower face, a retort pipe extending through the base above the trough and turned upwardly and extending along the upper face of the burner tube, and turned downwardly and communicating with the outer end of the distributing tube.

6. A burner of the character described comprising a supporting base of a trough-like form having a narrow trough arranged in one side and extending the entire length thereof, a burner tube supported by the upper edge of the base and having gas discharge openings, a distributing tube concentrically arranged within the burner tube

and loosely supported thereby and having gas discharge openings in its lower face, a retort pipe extending through the base above the trough and turned upwardly and extending along the upper face of the burner and turned downwardly and communicating with the outer end of the distributing tube, an oil supply for a retort pipe, means for controlling the gas to the distributing tube, and means for controlling the air supply to the distributing tube.

7. A burner of the character described comprising a base of a trough-like form having its bottom slanting toward one side and communicating with a trough extending the entire length thereof, a burner tube, heads removably secured to the burner tube and closing the same and supported by the upper edge of the base, said burner tube having gas discharge openings therein, a distributing tube supported by the heads and gradually increasing in diameter toward the rear end and loosely supported to have an independent movement, said distributing tube having gas discharge openings in its lower face, slides controlling the said openings, a rod connected to the slides and extending out through the forward head, a distributing chamber carried by the outer head, a shutter controlling the air supply to the distributing chamber, a retort pipe extending through the base above the trough and turned upwardly and extending forwardly along, above the upper face of the burner tube and extending downwardly and entering the distributing chamber, a valve controlling the discharge of gas therefrom to the distributing chamber, an oil supply for the retort pipe, a valve controlling said oil supply, and a drip cup below the distributing chamber and adapted to receive any excess oil that may pass through the retort pipe and convey it to the trough.

In testimony whereof we affix our signatures in the presence of two witnesses.

JAMES D. GOODWIN.
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Witnesses:
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