C. L. & A. B. MATTHEWS.

OIL BURNER.

APPLICATION FILED SEPT. 3, 1913.

1,095,903.

Patented May 5, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

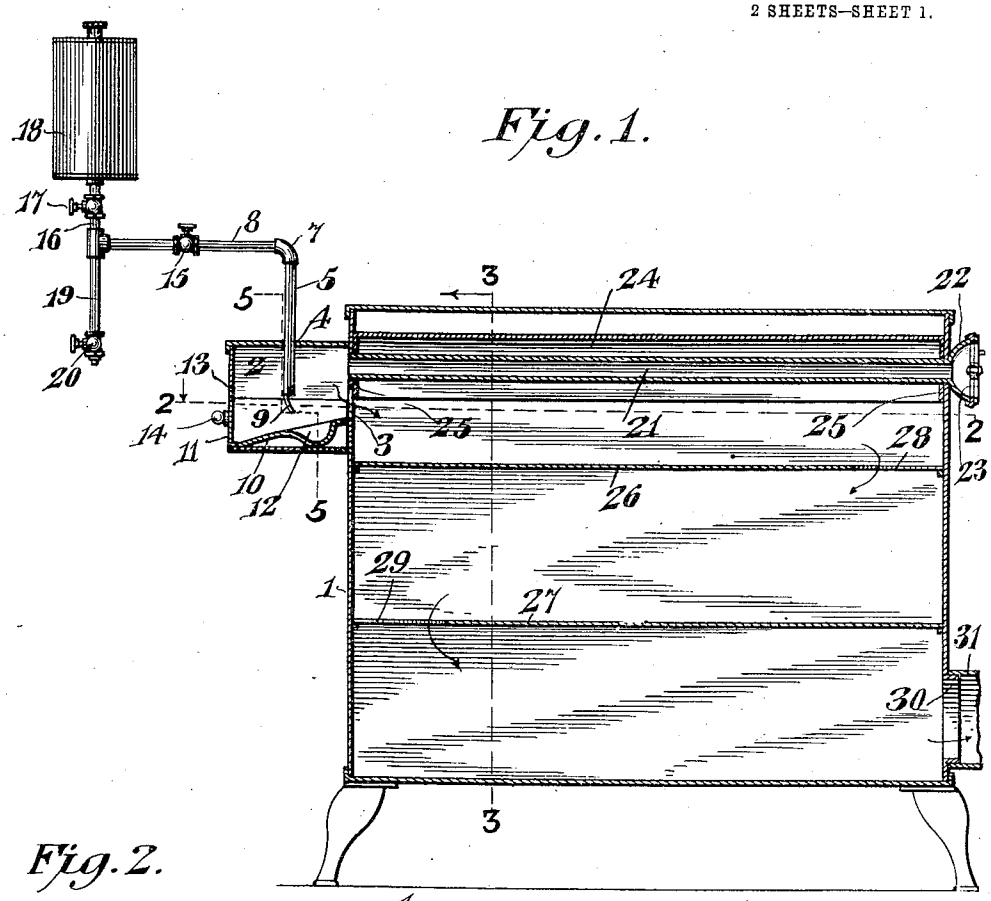
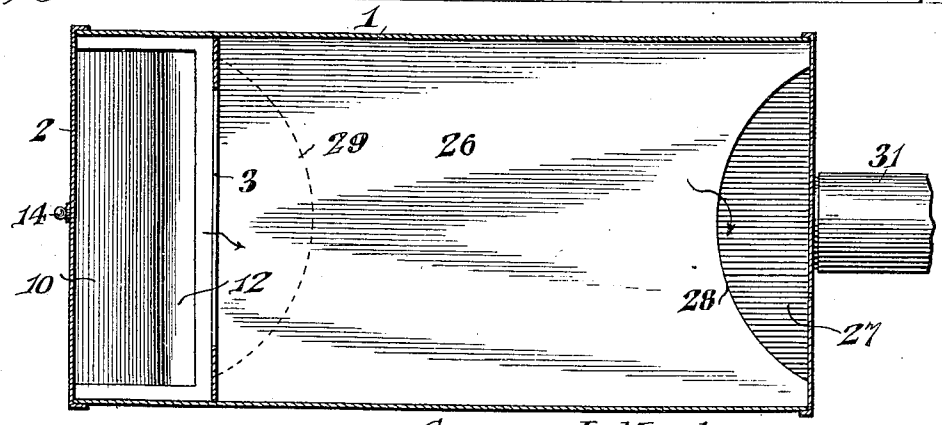


Fig. 2.



WITNESSES

Jas. F. McCathran

J. F. Riley

Cranmer L. Matthews,
Arthur B. Matthews,
INVENTORS

BY

E. G. Siggers

ATTORNEY.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 3.

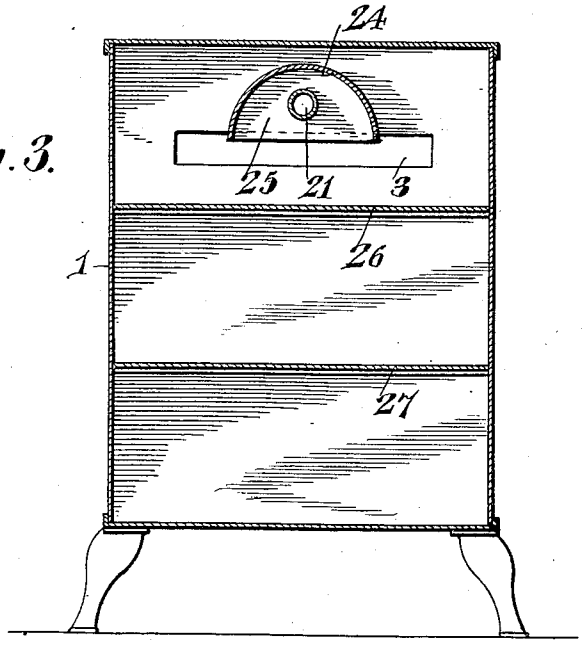


Fig. 6.

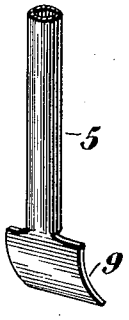


Fig. 4.

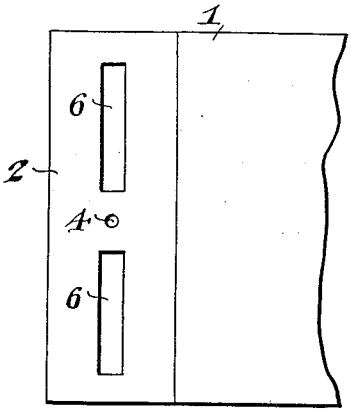
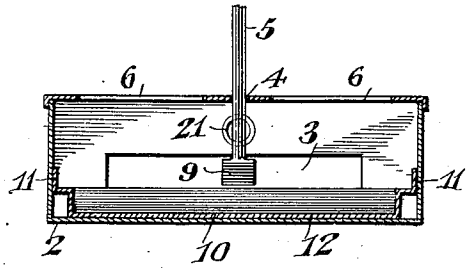


Fig. 5.



WITNESSES

Jas. F. McCathran

H. F. Riley

Cranmer L. Matthews,
Arthur B. Matthews, INVENTORS

BY E. G. Siggers

ATTORNEY

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CRANMER L. MATTHEWS AND ARTHUR B. MATTHEWS, OF HOUSTON, TEXAS, ASSIGNORS OF ONE-FOURTH TO ELISHA B. HEISTAND, OF HOUSTON, TEXAS.

OIL-BURNER.

1,095,903. Specification of Letters Patent. Patented May 5, 1914.

Application filed September 3, 1913. Serial No. 787,941.

To all whom it may concern:

Be it known that we, CRANMER L. MATTHEWS and ARTHUR B. MATTHEWS, citizens of the United States, residing at Houston, in the county of Harris and State of Texas, have invented a new and useful Oil-Burner, of which the following is a specification.

The invention relates to improvements in oil burners.

The object of the present invention is to improve the construction of oil burners, and to provide a simple, inexpensive and efficient oil burner, adapted to be easily adjusted to regulate the amount of heat, and equipped with means for causing the smoke and other products of combustion to circulate through it in such a manner as to permit comparatively little heat to escape through the smoke pipe.

A further object of the invention is to provide an oil burner of this character equipped with means for supplying the burner with highly heated air, and capable of consuming the greater portion of the smoke so as to leave but a comparatively small carbon deposit, and adapted to be easily cleaned.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings: Figure 1 is a vertical longitudinal sectional view of an oil burner, constructed in accordance with this invention. Fig. 2 is a horizontal sectional view on the line 2—2 of Fig. 1. Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 1. Fig. 4 is a plan view of one end of the oil burner, showing the combustion chamber. Fig. 5 is a sectional vertical view on the line 5—5 of Fig. 1. Fig. 6 is a detail view of the burner proper.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

In the accompanying drawings in which is illustrated the preferred embodiment of the invention, 1 designates a main or heater casing composed of a top, bottom, side and end walls, and designed to be constructed of sheet metal or other suitable material and having supporting legs. The casing is provided at one end at its upper portion with a combustion chamber 2, consisting of an oblong supplemental box or casing constructed of sheet metal or other suitable material and arranged exteriorly of the main casing and extending horizontally across the adjacent end wall of the casing and communicating therewith through a horizontal inlet opening 3, which permits the heat, smoke and other products of combustion to pass into the stove or heater casing 1 from the combustion chamber. The supplemental box or casing is provided in its top with a central opening 4 through which passes a burner tube 5. The top of the box or casing is also provided at opposite sides of the central opening with oblong air inlet openings 6. The burner tube 5, which is vertically disposed, is connected at its upper end by a coupling 7 with a feed pipe 8, and its lower end is split and spread to form an integral depending generating head or flange 9, which is curved from top to bottom to present a concave face to the oil dropping through the burner tube. The head or flange, which is oblong, extends laterally beyond the tube and it projects into the path of the fuel. The curved head or flange, which becomes entirely heated when the burner is lighted, is adapted to convert the major portion of the oil into a gas, which is consumed.

Any oil unconsumed by the burner falls upon a bottom plate 10, carried by and constituting a portion of a removable drawer 11 and provided at its rear portion with a trough 12 and inclined downwardly and outwardly from the outer wall of the trough which is preferably formed by a groove. The lower edge of the head of the burner terminates at a point above the front wall of the groove, and the inner longitudinal edge of the bottom plate fits against the end wall of the main casing at the bottom of the opening 3, so that the heat, smoke and other products of combustion may readily enter the main casing. The trough 12 is adapted to catch any oil dropping from the head of the burner tube and will hold such oil, in

which the same is consumed, and the smooth inclined lower or outer portion of the bottom plate is adapted to spread any oil overflowing from the trough to facilitate the burning of such fuel. The drawer 11 comprises a front wall, end walls and the bottom plate 10, and it is adapted to be readily withdrawn from the supplemental box or casing through an opening 13 into the front wall thereof. By this construction, any carbon deposited on the bottom plate may be readily removed therefrom, thereby enabling the combustion chamber to be easily and quickly cleaned. The removable drawer is designed to be provided at the front with a handle or knob 14, and, if desired, any suitable means may be employed for securing it in position within the supplemental box or casing. As the drawer is opened at the back above the inner longitudinal edge of the bottom plate, the depending burner does not offer any obstruction to the removal of the drawer and the replacing of the same within the combustion chamber.

The supply tube, which is provided with a regulating valve 15, has a vertical portion 16, which is provided with a cutoff valve 17 to prevent oil from a tank 18 from flowing through the feed pipe. The feed pipe 8, which extends horizontally from the vertical branch or portion 16, is provided at the angle formed by the said pipe and extension with a depending trap pipe 19, located directly beneath and forming a continuation of the vertical branch pipe 16 and adapted to catch any water and sediment, which may be contained within the oil. The trap pipe is equipped at its lower end with a drain cock or valve 20 by means of which the contents of the trap pipe may be drawn off, a closing of the valves 17 and 15 preventing any waste of oil.

The main casing is equipped with a horizontal draft pipe 21, arranged centrally of the upper portion of the main casing, as clearly illustrated in Fig. 3 of the drawings and extending the entire length thereof and having its ends piercing the end walls of the stove. One end of the draft pipe 21 communicates with the combustion chamber and the other end 22, which is enlarged and flared, is equipped with a damper 23 for controlling the passage of air through the draft pipe. Also any suitable means may be employed, if desired, for controlling the passage of air through the draft opening 6 of the supplemental box or casing. By controlling the flow of oil to the burner and the passage of air to the combustion chamber, the amount of heat of the oil burner may be regulated to suit the requirements. In order to secure a relatively high heating of the air passing through the draft pipe 21, the latter is equipped with a hood 24 of substantially semicylindrical form, constructed of sheet metal or other suitable material and provided with segmental end walls 25 having openings through which the draft pipe passes. The hood, which arches the draft pipe, is arranged in spaced relation with the same and its sides depend below the draft pipe and are adapted to catch and hold the heat to which the draft pipe and the air passing through the same are subjected.

The main casing is provided with upper and lower horizontally disposed deflecting plates or partitions 26 and 27 provided at opposite ends with openings 28 and 29 and forming a circuitous passage through the casing for the smoke and products of combustion. Any number of deflecting plates or partitions may be employed to cause the products of combustion to travel back and forth through the casing the desired extent before reaching the outlet opening 30. The outlet opening is located adjacent to the bottom of the main casing at the end wall opposite that at which the supplemental box or casing is arranged, and the main casing is provided at the outlet opening with a projecting collar or flange for the attachment of a smoke pipe 31.

The oil burner is started by placing a small piece of paper or other inflammable material on the bottom plate and permitting a small amount of oil to saturate the same. The paper is then ignited and the flange of the burner becomes heated and is adapted to vaporize the oil, the flow of which is controlled by the operating valve.

What is claimed is:—

1. An oil burner including a main heating chamber having an opening in one of its walls, a combustion chamber communicating with the same through the said opening, and a burner tube forming a passage for oil and provided at the discharge end with a substantially oblong flange projecting longitudinally from the tube and curved to present a concave face which is located opposite the said opening.

2. An oil burner including a combustion chamber provided at the bottom with a trough, and an upright burner tube extending into the combustion chamber and forming a passage for the oil, and a flange projecting laterally from the lower or discharge end of the burner tube and curved longitudinally thereof to present a concave face to the fuel and projecting into the path of the same, said flange being located above the trough and extending in the direction of the same to cause the oil unconsumed at the burner tube to flow into the burner trough.

3. An oil burner including a main heating chamber and a combustion chamber arranged exteriorly of the main heating chamber and provided with a bottom plate hav-

ing a trough and inclining downwardly and outwardly away from the trough and the heating chamber, and a burner tube forming a passage for the oil and located above the said trough.

4. An oil burner including a main heating chamber and a combustion chamber having a bottom plate and provided at the back adjacent to the main heating chamber with a trough formed by grooving the bottom plate, the latter being inclined downwardly and outwardly from the said trough, and a depending burner tube forming a passage for the oil and located above the trough.

5. An oil burner including a main casing having an opening, a supplemental box or casing mounted on the main casing exteriorly thereof and forming a combustion chamber which communicates with the interior of the main casing through the said opening, a bottom plate arranged within the combustion chamber and extending downwardly and outwardly from the said opening and provided with a trough, and a burner tube forming a passage for the oil and located above the said trough.

6. An oil burner including a main casing having an opening, a supplemental box or casing mounted on the main casing exteriorly thereof and forming a combustion chamber, a bottom plate arranged within the combustion chamber and provided at the back with an oil receiving trough and having an inclined face extending downwardly from the trough to the outer wall of the combustion chamber, and a burner tube arranged within the combustion chamber and located above the trough.

7. An oil burner including a main heating chamber, a combustion chamber arranged exteriorly of the main heating chamber and having an opening communicating therewith, a removable drawer slidably mounted in the combustion chamber and consisting of a bottom plate and walls extending upwardly therefrom, said bottom plate being inclined and extending downwardly and outwardly from the said openings and provided with a trough, and a burner tube forming a passage for the oil and located within the combustion chamber above the said drawer.

8. An oil burner including a main heating chamber, a combustion chamber arranged exteriorly of the main heating chamber and communicating therewith, a burner tube located within the combustion chamber and forming a passage for the oil, and a draft pipe extending through the main heating chamber and communicating with the combustion chamber and with the outside atmosphere.

9. An oil burner including a main heating chamber, a combustion chamber arranged exteriorly of the main heating chamber and communicating therewith, a burner tube located within the combustion chamber and forming a passage for the oil, a draft pipe extending from the main heating chamber and communicating with the combustion chamber and with the outside atmosphere, and a hood arranged above and receiving the draft pipe and adapted to collect heat, whereby the draft pipe is highly heated.

10. An oil burner including a main casing, a supplemental casing mounted on the main casing exteriorly thereof and forming a combustion chamber, a draft pipe extending through the main casing and communicating at one end with the combustion chamber and provided at the other end with means for controlling the passage of air through the draft pipe, and a burner tube located within the combustion chamber.

11. An oil burner including a main casing provided with a plurality of horizontal deflecting partitions provided at opposite points with openings and forming a circuitous passage through the casing, a supplemental box or casing mounted exteriorly of the main casing and forming a combustion chamber communicating with the said passage at one end thereof, a burner tube located within the combustion chamber and a smoke pipe connected with the passage at the other end thereof.

12. An oil burner including a main casing provided with a plurality of deflecting partitions provided at opposite points with openings and forming a circuitous passage through the casing, a supplemental box or casing mounted exteriorly of the main casing and forming a combustion chamber communicating with the said passage at one end thereof, a smoke pipe connected with the passage at the other end thereof, and a draft pipe extending through the main casing and communicating at one end with the combustion chamber and provided with means for controlling the passage of air through the said draft pipe.

In testimony that we do claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

CRANMER L. MATTHEWS.
ARTHUR B. MATTHEWS.

Witnesses:
A. E. EVERTS,
W. T. EVANS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."