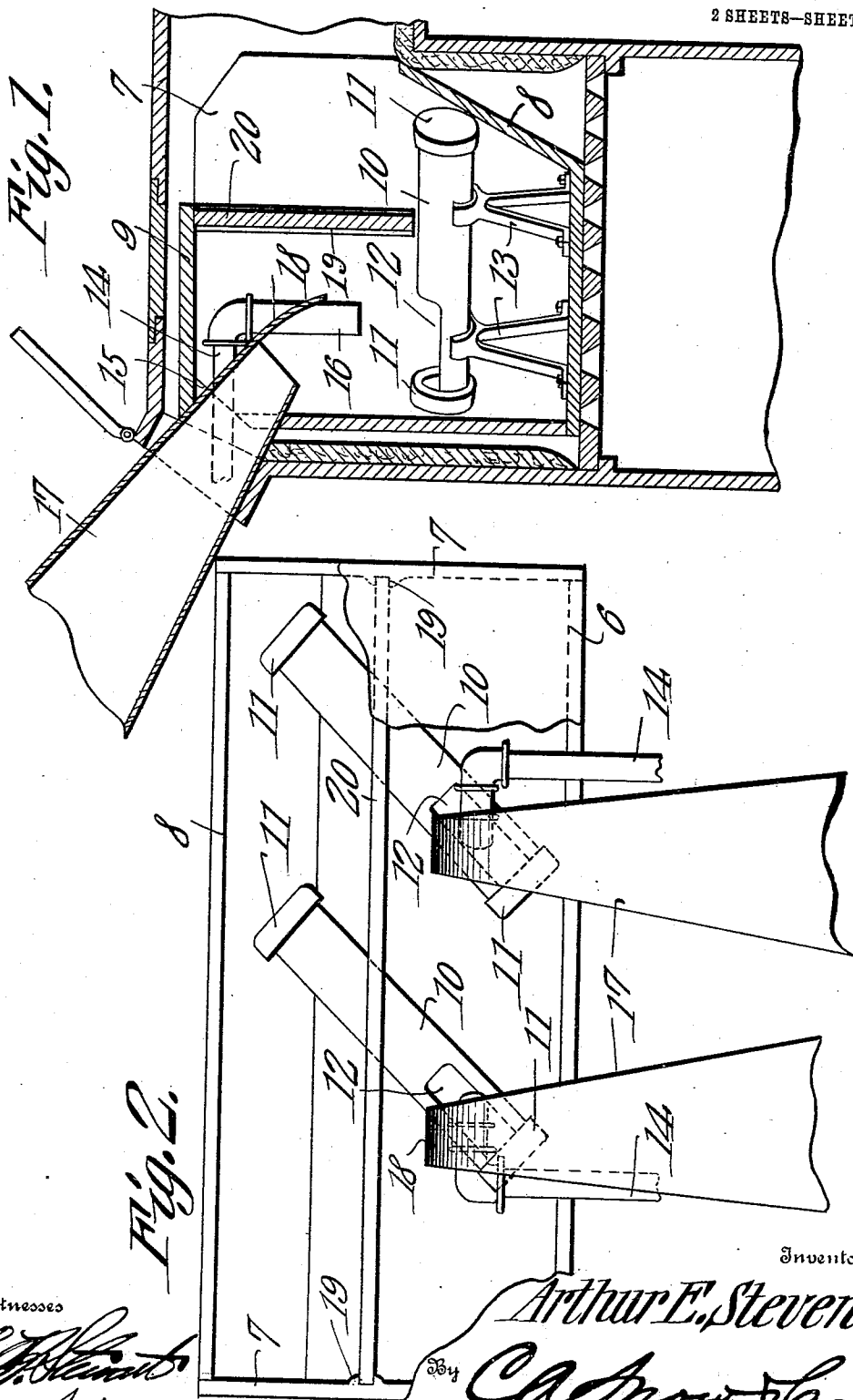


943,482.

A. E. STEVENS.
LIQUID FUEL BURNER.
APPLICATION FILED AUG. 25, 1909.

Patented Dec. 14, 1909.

2 SHEETS—SHEET 1.



Witnesses

E. J. Smith
M. A. Schmitt

Inventor

Arthur E. Stevens.

By

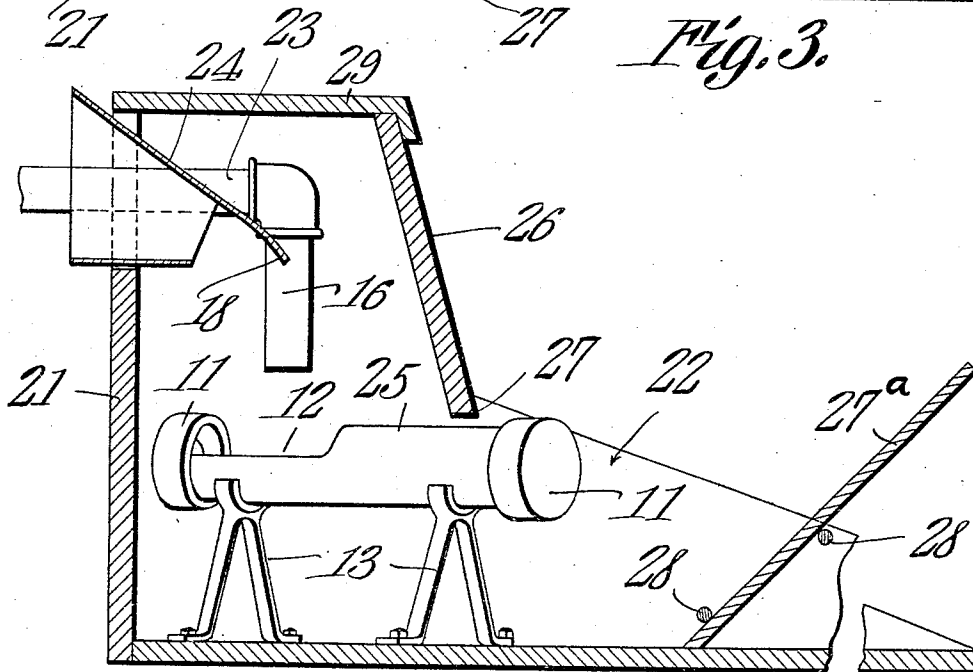
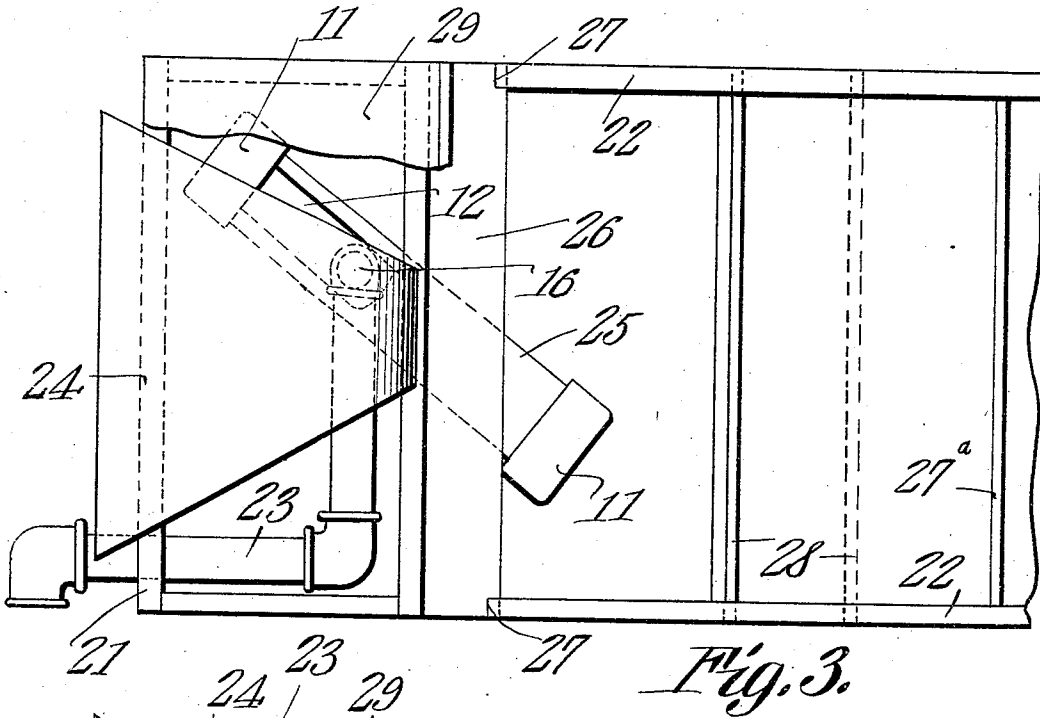
C. A. Snow & Co.
Attorneys

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2 SHEETS—SHEET 2.



Witnesses

E. J. Stewart
M. A. Schmidt

Inventor
Arthur E. Stevens.

By *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

ARTHUR EDWARD STEVENS, OF SYCAMORE, KANSAS.

LIQUID-FUEL BURNER.

943,482.

Specification of Letters Patent.

Patented Dec. 14, 1909.

Application filed August 25, 1909. Serial No. 514,608.

To all whom it may concern:

Be it known that I, ARTHUR EDWARD STEVENS, a citizen of the United States, residing at Sycamore, in the county of Montgomery and State of Kansas, have invented a new and useful Liquid-Fuel Burner, of which the following is a specification.

This invention relates to liquid fuel burners of that kind which are adapted to be applied to ordinary coal burning stoves, and its object is to provide a burner which is simple in structure, and which can be readily applied to the stove, it being mounted in the firepot thereof.

Another object is to provide a burner which produces an intense heat and which is spread evenly throughout the firepot.

A further object is to provide a straight back draft, air being taken in at the outside of the stove, in front thereof, and passing through the burner to the smoke outlet in a direct line.

With these objects in view, the invention consists in a novel construction and arrangement of parts to be hereinafter described and claimed, reference being had to the drawings hereto annexed in which—

Figure 1 is a vertical sectional view of the burner in position within the firepot of the stove. Fig. 2 is a plan view of the burner shown in Fig. 1. Fig. 3 is a plan view of a modification, and Fig. 4 is a vertical section thereof.

Referring to the drawings, the burner is contained in a casing having perpendicular front and side walls 6 and 7, respectively, and an outwardly inclined rear wall 8, the height of the rear wall being less than that of the front wall, so that an opening is had at the rear end of the casing through which the products of combustion escape. The top of the casing is provided with a removable cover 9.

The burner proper comprises a horizontally disposed tube 10 which is closed at its ends by caps 11. An opening 12 is made in the top of the tube, at one end. The tube is supported a suitable distance above the floor of the casing by legs 13, and it extends obliquely between the front and rear walls of the casing, below the plane of the upper edge of the rear wall 8, the opening 12 being in that end of the tube which is nearest the front wall 6.

In Figs. 1 and 2, the casing contains two burners which are arranged side by side, and

Figs. 3 and 4 show a single burner, these burners being all identical in structure.

At 14 are shown the oil supply pipes of the burner. These pipes are connected to a tank or other suitable source of supply (not shown), and are led through the front door of the stove, and through an opening 15 made in the front wall 6 of the casing near the top thereof, so as to extend into said casing, above the burner tubes 10. Within the casing, the oil pipes terminate in a downwardly directed portion 16 from which the discharge of oil takes place, said portion being located directly above the opening 12, so as to discharge thereinto. The discharge end of the portion 16 is spaced a suitable distance from the opening 12. Each burner tube is supplied with an oil pipe as herein described.

Air to support combustion is fed into the casing through tubes 17 entering the same through the opening 15, and passing through the front door of the stove to the outside thereof. Two draft tubes are provided, one for each burner tube, and they are downwardly inclined in the direction of said burner tubes so as to discharge the air in the direction of the openings 12, there being deflectors 18 at the discharge ends of the draft tubes, which direct the air toward said openings. The draft tubes taper in the direction of their discharge ends, and they are adjustably mounted in the opening 15, so that they may be placed to direct the air to the point desired.

Slidably mounted in guide grooves 19 in the side walls 7 of the casing, is a perpendicular partition 20 extending from the top of the casing, downwardly to the burner tubes, the lower end of the partition, and the upper end of the rear wall 8, being in substantially the same horizontal plane. The opening 12, and oil and air inlets, are located between the partition and the front wall of the casing.

The form of burner herein described is intended for cooking stoves, the casing being mounted in the firepot thereof, and supported on the grate shown in Fig. 1. If a light fire is wanted, only one of the burner tubes is used, it being understood, that each supply pipe is provided with a suitable valve, so that the oil may be turned on or off.

In operation, oil is run into the tube 10, and ignited at the opening 12. The flames at said opening are deflected downwardly

by the partition 20 and they entirely envelop the tube 10, and upon striking the rear wall 8, are directed upwardly to the outlet. The burner tube becomes intensely
 5 heated, and a gas is generated therein, which, upon reaching the opening 12, is mixed with air, and ignited. The draft is from the front of the stove to the back thereof in a direct line through the burner casing, and
 10 it can be readily regulated by shifting the draft tubes 17 in the opening 15.

Figs. 3 and 4 show a burner which is designed for heating stoves. The casing of this form of burner is provided with a single burner tube 25, and the front and side walls 21 and 22 respectively, of the casing are perpendicular, the front wall having an opening through which the oil and draft tubes 23 and 24 respectively, enter as before. The burner tube 25 is identical in structure to the ones already described, and the position of the oil and draft tubes relatively thereto is also the same. The side walls are reduced in height, and against the
 15 downwardly extending edge thus formed, is placed a plate 26, which seats at its lower end in notches 27 made in the top edge of the reduced portion of the side walls. This plate 26 leaves the rear end of the casing
 20 open so as to afford an escape for the products of combustion, said products being deflected upwardly by means of an inclined plate 27^a mounted between the reduced portions of the side walls 22, the plate being
 25 removably held in place between crossrods 28 extending between said walls near the top and bottom thereof, and engageable with opposite sides of the plate. The top of the casing between the plate 26 and the
 30 front wall 21 is closed by a removable cover 29. The burner shown in Figs. 3 and 4 operates in the same manner as the burner already described, the function of the plates 26 and 27^a being the same as that of the

partition 20 and rear wall 8 of the burner
 45 shown in Figs. 1 and 2. By mounting the tubes 10 obliquely in the casing, the length of the latter may be considerably reduced.

What is claimed is:—

1. A liquid fuel burner, comprising a casing, a horizontal burner tube in the casing
 50 spaced from the bottom thereof, and having a top opening, fuel supply and adjustable draft pipes entering the casing, and discharging downwardly in the direction
 55 of the burner tube, and means for deflecting the products of combustion upwardly as they leave the burner.

2. A liquid fuel burner comprising a casing, a burner tube therein having a top
 60 opening, draft and fuel supply pipes entering the casing, and discharging in the direction of the opening in the burner tube, a partition in the casing extending between
 65 the top thereof and the burner tube, the tube opening and the draft and fuel supply pipes being located to one side of the partition, and a deflector on the opposite side of the partition extending upwardly from
 70 the bottom of the casing.

3. A liquid fuel burner comprising a casing, a horizontal burner tube in the casing
 75 extending obliquely between the front and rear thereof, and having a top opening, draft and fuel supply pipes entering the casing and discharging downwardly in the direction of the opening in the burner tube, and means for deflecting the products of combustion upwardly as they leave the
 80 burner.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ARTHUR EDWARD STEVENS.

Witnesses:

BERTHA WHARTON,
 L. C. GUNNELL.