

(No Model.)

E. A. EDWARDS.
OIL STOVE.

No. 492,718.

Patented Feb. 28, 1893.

Fig. 1.

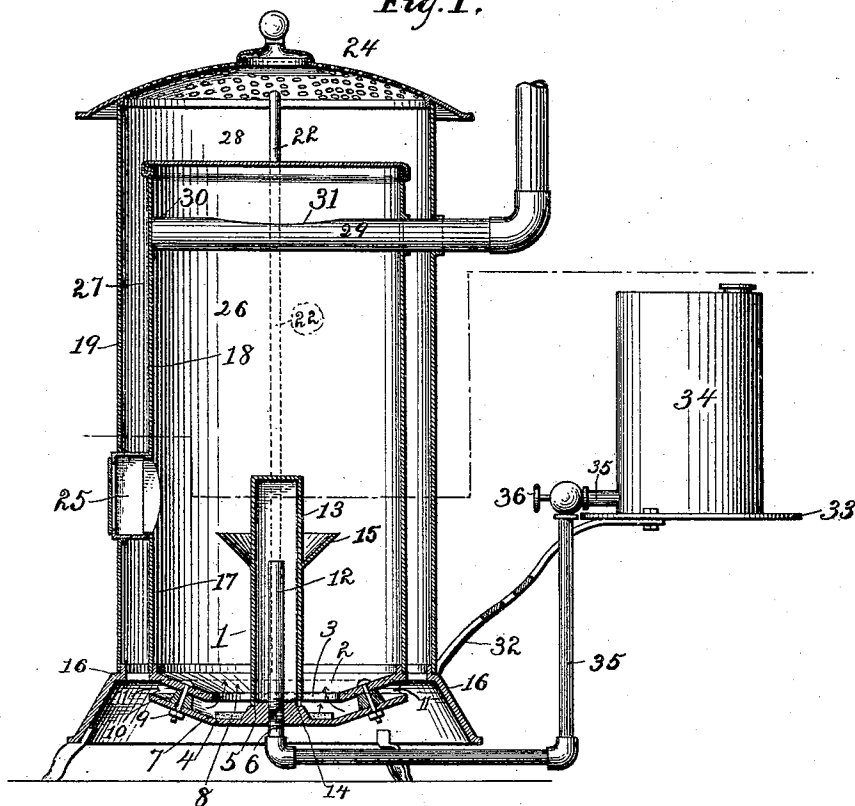
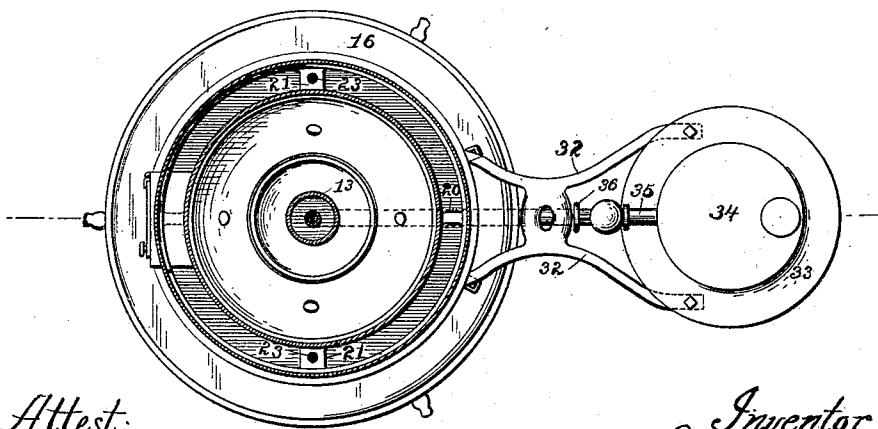


Fig. 2.



Attest:
Walter J. Farnsworth,
Geo. E. Corne.

Inventor
E. A. Edwards
By Knight Bros. Attys.

UNITED STATES PATENT OFFICE.

EVAN A. EDWARDS, OF TOLEDO, OHIO.

OIL-STOVE.

SPECIFICATION forming part of Letters Patent No. 492,718, dated February 28, 1893.

Application filed December 7, 1891. Serial No. 414,324. (No model.)

To all whom it may concern:

Be it known that I, EVAN A. EDWARDS, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful improvements in Oil-Stoves, of which the following is a specification.

My present invention is designed more particularly for heating stoves, but one part of my invention relates specifically to a burner which is adapted for a much wider application than to the particular form of heater to which I have here shown it applied.

The principal feature of my invention is the burner which consists, broadly speaking, of a pair of parallel plates, one of which is apertured, said plates being separated to form a restricted air draft space open on all sides between them and having a central oil feed. In carrying out this part of my invention, I prefer to construct the lower plate with a central boss through which the supply pipe enters and projects beyond the apertured plate, and a surrounding oil receptacle, consisting either of an absorbent material or a depression or both. Over the projecting end of the oil supply pipe is a vaporizing dome which rests upon the base and communicates with the surrounding oil receptacle through spaces formed by serrations in its lower supporting end. The upper apertured plate is supported by the base of the stove, of which base it may form part, and this base is further provided with suitable supporting legs and a bracket for supporting a reservoir in convenient relation to the oil supply tube, which passes through the central boss in the bottom of the burner. So much of my burner is applicable to other forms of stoves and I find it well adapted for substitution for old stoves already in use.

My invention further consists in a new and improved stove body for air heating purposes, and in the combination of said body with my particular form of burner. The stove body consists of two concentric drums resting upon the base, and forming a central combustion chamber over the burner, a surrounding air flue opened at bottom for the free admission of air, and a hot air chamber between the drums at top, which is supplied by the air flue and has a restricted opening at top. The

combustion chamber has near its top an outlet with an upwardly presented opening flue formed by passing a pipe through the adjacent walls of the two drums and terminating at the opposite wall of the inner drum, an opening being previously made in the upper side of the pipe. The effect of this particular form of body is to supply pure air through the air flue to the hot air chamber, causing it to linger there until heated, and to facilitate the heating of the air in said chamber by insuring the impact of the gases and products of combustion against the top of the combustion chamber (which forms the bottom of the hot air chamber) before they can escape.

If preferred, a deflecting collar may be formed on or attached to the vaporizing dome for the purpose of throwing the burning gas outward against the walls of the combustion chamber and assist in the result aimed at by heating the air as it rises through the annular air flue. This is not essential, however, since not only may the deflector be omitted but the entire vaporizing dome may be dispensed with and the central supply pipe terminated in or at the top of the boss. I have found this last mentioned arrangement to produce good results.

In the accompanying drawings I have shown a single stove embodying all the features of my invention, but it will be observed that the burner may be used separately from the other parts, and the omission of other parts above referred to may be resorted to without departing from the spirit of my invention.

Figure 1 is a vertical central section of an oil stove embodying the features of my invention; and Fig. 2 is a horizontal section taken on the irregular line $x-x$ in Fig. 1.

1 represents the burner which consists of the upper plate 2 having the aperture 3 and the lower parallel plate 4 having the central boss 5, through which passes the feed pipe 6. Surrounding the boss is the oil receptacle 7 which may consist simply of a depression or which may be provided with an annular ring 8 of asbestos or other absorbent material. The lower plate 4 is attached to the upper plate 2 by means of bolts 9 and is separated therefrom by sleeves 10 so as to form the restricted air draft space 11, which is open at all sides.

The plates 2 and 4 are made parallel in order to effect a proper draft and the plate 4 is depressed in the center to form a cup or receptacle for the oil which flows out before
 5 ignition until sufficient heat is developed to vaporize the fuel. The central feed tube 6 and the upwardly projecting end 12 pass considerably beyond the upper plate 2 and around this end 12 is a vaporizing dome 13,
 10 which rests at its lower end 14 upon the boss 5 of the lower plate 4. The lower supporting end 14 of the vaporizing dome 13 is serrated in order to form spaces through which the oil may escape notwithstanding the fact that the
 15 dome rests on said boss. Around the vaporizing dome and somewhat above the center is a flaring deflector 15 which, when the burner is in full operation acts to deflect the burning gases and throw it outward against the wall
 20 of the stove as will hereinafter appear.

16 represents the base of the stove provided with flanges 17 around which are seated the respective drums 18, 19. The burner 1 is connected to the base 16 by means of the bridges
 25 20 and 21. The bridges 21 are made slightly larger than the bridges 20 for the accommodation of rods 22 which pass through perforations 23 in said bridges and through the top 24 of the stove for the purpose of holding
 30 said top and the base of the stove together with the intervening drum 19 securely.

25 represents a door which is formed in the side of the body of the stove in such manner as to give access to the interior drum 18 for the
 35 initial igniting of the oil.

Concentric drums 18 and 19 are so formed and of such relative size as to form a central combustion chamber 26, a surrounding annular
 40 air flue 27 and an enlarged upper hot air chamber 28. The combustion chamber 26 is closed at top and has an outlet flue 29 consisting of a pipe passed through the adjacent walls of drums 18, 19, and cut off by the abutment of
 45 its inner end against the wall of the drum 18 opposite to where it enters, as shown at 30. The combustion chamber 26 communicates with this outlet flue by an upwardly presented opening 31 formed in the pipe 29. The
 50 bottom of the combustion chamber is closed by the burner 1 with the exception that air may enter through the draft space 11 and aperture 3 for supporting combustion. The air flue 27 is opened at bottom for the free ingress of air and at top communicates with the
 55 hot air chamber 28 directly above the combustion chamber.

In order to restrict the outlet of air from the combustion chamber 28 and cause it to linger in said chamber until it becomes thoroughly heated, the top 24 is perforated and
 60 these perforations are sufficient in number to allow an ample quantity to pass off and thus set up a circulation through the stove to rely upon for heating the room. The opening 31 in the outlet flue of the combustion
 65 chamber is presented upwardly for the purpose of insuring an impact of the gases or products of combustion against the top of the combustion chamber which forms the bottom of the hot air chamber.

32 represents a bracket which is attached to the side of the base 16 of the stove and carries a shelf 33 for the support of the reservoir tank 34. The reservoir 34 communicates through pipe 35 with the central supply pipe
 75 6 and the flow of the oil through said pipe 35 is regulated by valve 36.

A burner constructed in accordance with my invention above described will be found to insure complete combustion of the fuel by
 80 simple means. The lower plate of the burner may be readily removed by unscrewing the nuts of bolts 9 and the draft space 11 between the parallel plates may be regulated by changing the sleeves 10. The burner is not only
 85 well adapted for the stove with which it is shown combined, but it is also well adapted for application to stoves of other forms.

Having thus described my invention, the following is what I claim as new therein and
 90 desire to secure by Letters Patent:

1. An oil burner comprising an upper apertured plate, a lower parallel plate spaced from the upper plate, and having the central feed pipe projecting upward through the upper
 95 plate, and a vaporizing dome surrounding the projecting end of the feed pipe, substantially as and for the purpose set forth.

2. In an oil burner the combination of the upper apertured plate; the lower plate supported parallel with the upper plate with a space between the plates, and having the central boss, the upwardly projecting feed pipe and the oil receptacle surrounding said boss and feed pipe; and the vaporizing dome surrounding said projecting feed pipe and resting on the boss, all substantially as and for
 105 the purpose set forth.

EVAN A. EDWARDS.

Witnesses:

JOHN T. GREER,
 EDNA MORRIS.