

(No Model.)

2 Sheets—Sheet 1.

E. M. SPALDING & G. E. WILLSIE.
OIL BURNER.

No. 488,744.

Patented Dec. 27, 1892.

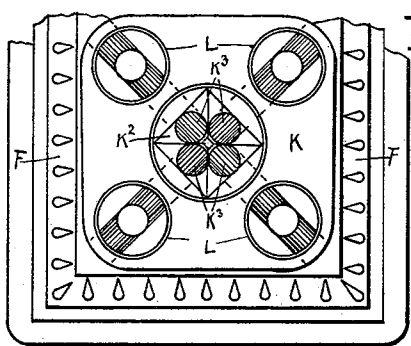
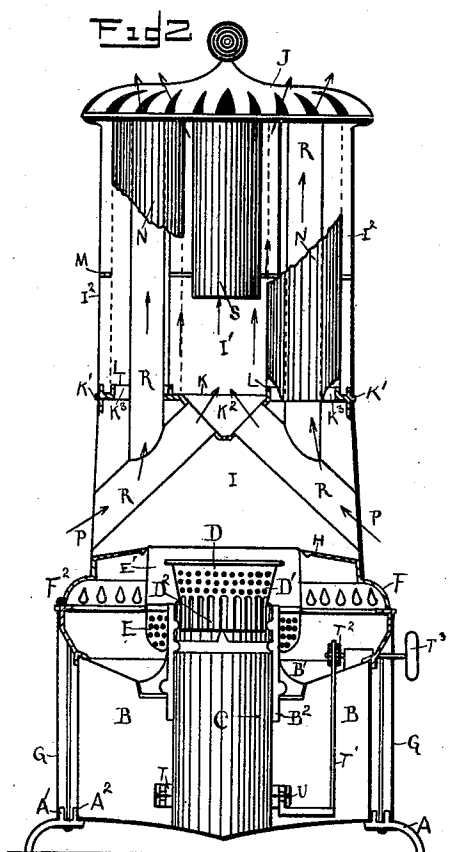
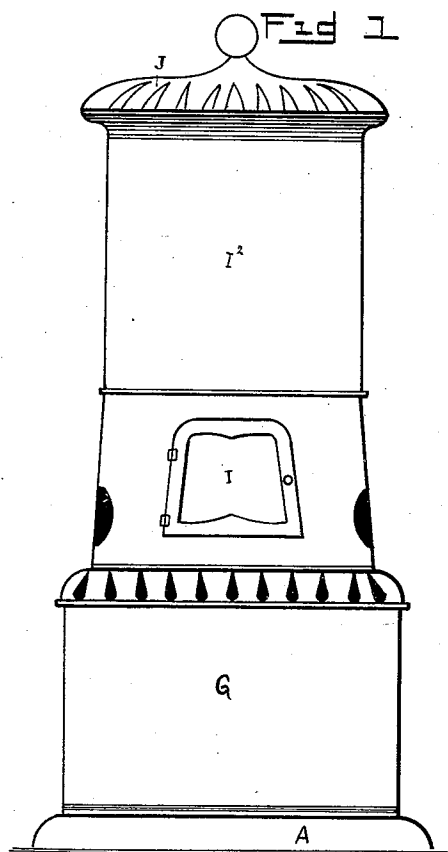


Fig 3

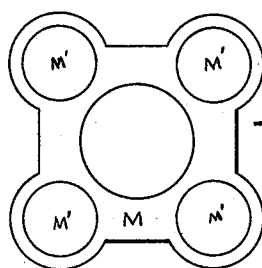


Fig 4

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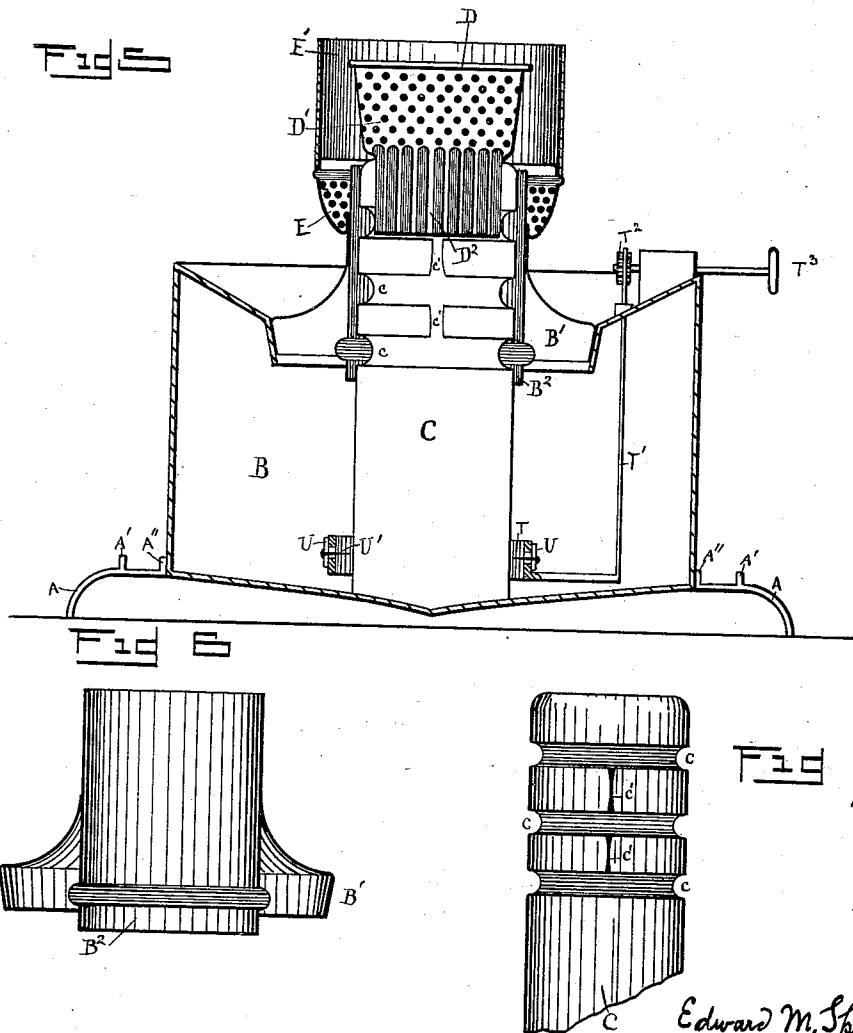
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UNITED STATES PATENT OFFICE.

EDWARD MARTIN SPALDING AND GEORGE EASTMAN WILLISIE, OF
FREMONT, NEBRASKA.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 488,744, dated December 27, 1892.

Application filed February 16, 1892. Serial No. 421,765. (No model.)

To all whom it may concern:

Be it known that we, EDWARD MARTIN SPALDING and GEORGE EASTMAN WILLISIE, of Fremont, in the county of Dodge and State of Nebraska, have invented certain useful Improvements in Oil-Burners; and we do hereby declare that the following is 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, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to a new and useful improvement in oil burners, the object being to provide an oil burner in which the combustion shall be nearly perfect, and, which shall have great radiating power, and in furtherance of this object, the invention consists in the construction, combination and arrangement of parts, as hereinafter more fully described and finally pointed out in the claims.

In the accompanying drawings, Figure 1 shows a perspective view of a stove embodying our invention, Fig. 2 an elevation having parts broken away, Fig. 3 is a top view with the cover removed; Fig. 4 a view of the upper stay plate; Fig. 5 an enlarged detail of the burner, having the upper hinged portion removed; Fig. 6 is an enlarged view of the outer, and Fig. 7 an enlarged view of the inner wick tube, as employed in our invention.

The invention embodies essentially an oil heater comprising a burner, a combustion chamber and a superposed heating chamber.

A represents a rectangular supporting or base frame, preferably of iron, having the continuous upwardly projecting retaining flanges A', A''. Within the inner flange is held, the reservoir B preferably of sheet metal, which has its upper or deck portion converging toward a central flanged and circular opening, within which is held the correspondingly flanged collar B' of the outer wick tube B'' as shown in Fig. 6.

Fixed centrally within the reservoir B, is the inner wick tube C, which extends a little above the removable outer wick tube B'', and

having its upper end crimped, to form an inwardly extending flange, which gives a seating to the fluted and perforated button D. This button is provided with the usual flat top and having the perforated body D' and ending in the fluted collar D'' adapted to fit within the inner wick tube C as shown.

Removably held upon the outer wick tube B'', is the perforated collar E, having the cylindrical sleeve E', both of which, in conjunction with the button D, form the burner proper, as shown.

Mounted upon the reservoir B and secured by means of suitable bolts a is the rectangular supporting frame F, having its lower edge extended in the form of a right angle, so as to nicely seat and encompass the upper edge of the reservoir B, the upper portion of the frame extending outward so as to come in line with the lower outer flange A', of the base frame A, as will be understood by referring to Fig. 2.

Hinged at one side to the frame F, is the open plate H having a central circular opening within which is held the sleeve E' of the burner. This plate H in conjunction with the frame F, forming the combustion chamber, into which the air is permitted to feed by passing up the inner wick tube C, escaping at the fluted collar D'' and also entering through the opening of the plate H. This plate at its upper end offers an abutting shoulder, against which the rectangular heating chamber is secured. This heating chamber is preferably of sheet metal, and comprises the lower chamber I and the upper chamber I'. The lower chamber I, of cast metal properly, forms the combustion chamber, and at its upper end is provided with the plate K, a top view of which is shown in Fig. 3, which has a flanged edge K', a central rectangular dished portion K'' provided with four pipe openings K''', K''', K''', K''', while upon the deck portion the plate is further provided with the four circular flanges L, L, L, L, surrounding four openings within said plate. This plate gives support to the upper section I'', which section is held and secured at the

top by means of the fretted cup-plate J. Centrally within the chamber I'', is secured the supporting plate M, shown in Fig. 4, having five openings, the four center ones corresponding to the flanges L, marked M', M', M', M'.
 N, N, N, N, represent four tubes, extending from and being held upon the flanges L, and passing through the opening M' of the plate M. These tubes are all open-ended and of any suitable sheet metal.

Leading from four openings P, P, P, P, within the lower chamber I, into the openings K'', within the plate K, are the tubes R, R, R, R, approximately in the shape of an inverted T, the stem passing upward through the tubes N, as will be noticed in referring to Fig. 2. This T forms a hot air flue, the lower portion passing through the combustion chamber and leading into the hot air chamber, while the stem passes centrally up the pipes N which latter form four chimney tubes, through which the products of combustion escape.

Hung within the hot air chamber, is the water pot S, as shown in Fig. 2. The upper supporting plate M, is properly a skeleton supporting plate, so as to force the hot air against the sides of hot air chamber I.

When the several parts have been properly constructed, and arranged, the operation of our device is as follows: The wick, which is adjustably held between the outer and inner wick tubes, is ignited, the flame blazing about the button D. The cool air feeds into the combustion chamber through the inner wick tube C, and through the opening of open plate H as indicated by the arrows. The heat from the combustion chamber passes into the chamber I, and then escaping through the tubes N, and out of the top of the heater. The air within the open-ended T pipes as it is heated is rarefied and rises and escapes partly into the hot air chamber and partly out of the stem within the tubes N escaping at the fretted top as shown by the arrows. The upper sections I, I' are hinged to the lower frame F' by means of the hinge F'', so that the upper section may be thrown aside when it is desired to clean or repair the burner D.

In order to facilitate the adjustment of the wick, and regulate the consumption of the oil, we have provided the wick collar T, having the rack T' adapted to work against the pinion T'' so that the rack may be vertically adjusted by means of the pinion T'', the shaft of which is provided with an operating knob T'''. The collar T is provided with three or more openings, and is encompassed by a thin spring steel clip U having three or more pins U' which pass through the openings of the collar T, and through the wick, so that the wick is impinged and detachably secured to the collar.

It often occurs, that more oil is fed to the burner than can be consumed by the flame,

and this surplus oil not being thoroughly consumed, causes the flame to smoke, and emit disagreeable odors. To overcome this defect we have provided the inner wick tube C, with the inwardly extending semi-circular grooves c, which communicate by one or more vertical connecting ducts c', so that the superfluous oil, in place of clogging the wick, is collected in the grooves c and permitted to escape to the lower part of the wick, where it would not affect the flame.

The device is noticeable because of its simplicity, and

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

1. In an oil heater, the combination of a reservoir, having a central flanged opening, an outer wick tube having a flanged collar adapted to be removably held within said flanged opening, an inside stationary wick tube, having its upper end crimped and being provided with a series of inwardly extending circumferential grooves, ducts connecting said grooves a button having a fluted neck removably held within said inner wick tube, and an adjustable perforated collar upon said outer wick tube, being provided with a cylindrical sleeve, all arranged substantially as and for the purpose set forth.

2. In an oil burner the combination with a reservoir of a supporting rim attached to said reservoir, an open fretted frame plate hinged to said supporting rim, a combustion chamber secured to said hinged supporting rim, having an upper heating chamber, a plate provided with pipe openings positioned within said chambers, vertical combustion tubes leading from the combustion chamber and passing through the heating chamber, inverted T shape hot air pipes leading from without through the combustion chamber to within the upper heating chamber, and having its stem pass through the vertical combustion tubes, all substantially and as for the purpose set forth.

3. The combination of the reservoir and burner, of a hinged heater, comprising the following instrumentalities: to wit: the hinged open fretted frame plate F, having a central opening adapted to receive the burner, the combustion chamber, I, the double flanged plate K', having the dished portion K'', provided with suitable pipe openings, and the circular flanged openings L, L, the upper chamber I, the open fretted top J, the combustion tubes N, N, and the inverted T shaped hot air tubes R, R, all arranged substantially as and for the purpose set forth.

4. In an oil burner the combination with a supporting frame, of a reservoir having its deck converging toward a central circular flanged opening, adapted to hold a correspondingly flanged collar, forming part of the outer removable wick tube, an inner wick

5 tube extending beyond the outer tube and having its upper end crimped inwardly, so as to form a seating for a fluted and perforated button, and a removable perforated collar adapted to hold a cylindrical sleeve, all arranged to operate substantially as and for the purpose set forth.

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

EDWARD MARTIN SPALDING.
GEORGE EASTMAN WILLSIE.

Witnesses:

N. P. FEIL,
G. W. SUES.