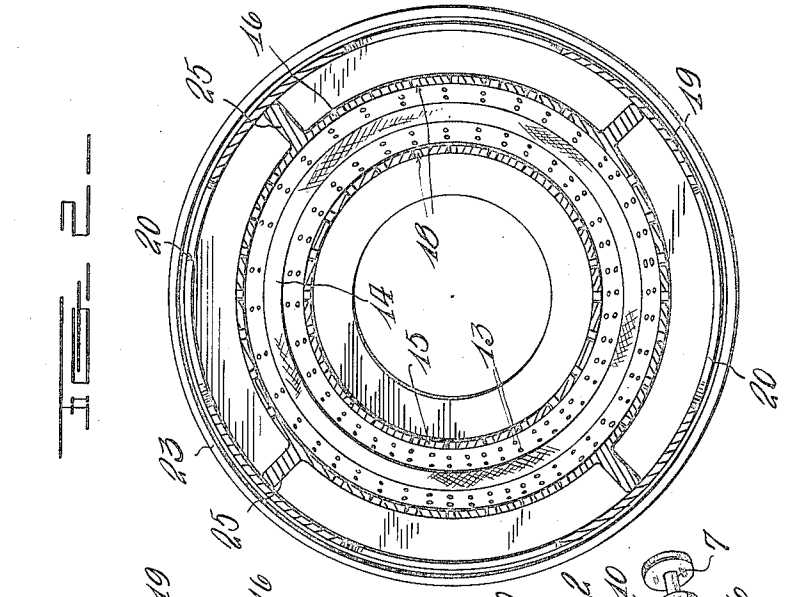
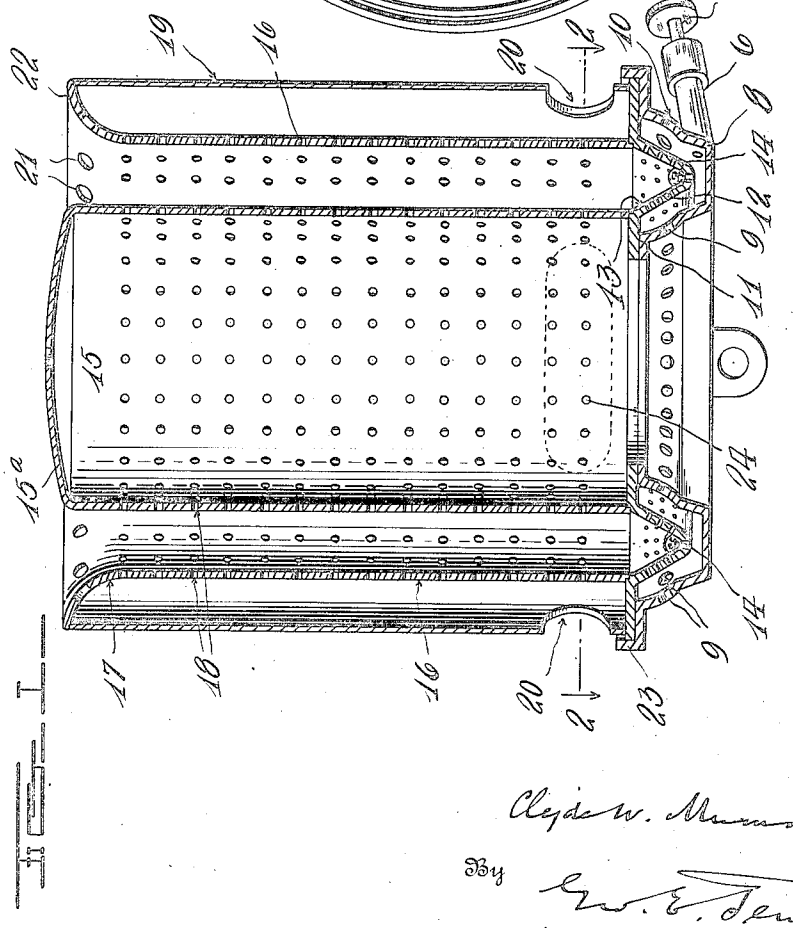
C. W. MUMMERY.

OIL BURNER.

APPLICATION FILED SEPT. 23, 1921.

1,434,835. Patented Nov. 7, 1922.





Inventor

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UNITED STATES PATENT OFFICE.

CLYDE W. MUMMERY, OF DETROIT, MICHIGAN.

OIL BURNER.

Application filed September 23, 1921. Serial No. 502,313.

To all whom it may concern:

Be it known that I, CLYDE W. MUMMERY, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Oil Burners, of which the following is a specification.

This invention relates to oil burners, and particularly to burners of the wickless type especially adapted and intended for burning kerosene, and in which the combustible vapor is generated, after starting, by means of heat communicated to the walls of a generating and mixing chamber which is supplied with vapor from oil in a trough below, the structure acting as a combined retort and generator and providing a smokeless flame without odor or the production of soot. The structure is characterized by novelty with respect to the means for producing the vapor from the oil and for supplying air in the proper quantity to effect perfect combustion.

One form of the invention is illustrated in the accompanying drawings in which Fig. 1 is a vertical section of the burner. Fig. 2 is a cross section.

Referring specifically to the drawings, 6 indicates a supply pipe controlled by any suitable valve 7. This pipe discharges into the base of the burner which has a form of a trough 8 which in the form shown is annular in shape, and above the oil line the sides of the trough are provided with air holes 9 and 10 to admit a suitable amount of air into the trough above the oil therein.

Upon the top of this trough rests a bottom ring 11 formed with a depending portion or trough 12 which is V-shaped in cross section and of sufficient depth to dip or extend into the oil in the trough 8. The sides of this trough 12 have numerous small perforations 13 for admitting the mixed air and vapor to the upper part of the burner, and for starting purposes a wick 14, of asbestos or the like, may be placed in the bottom of the trough 12, where it will absorb oil from the oil trough below.

The body of the burner consists principally of two concentric tubular shells, an inner one 15 and an outer one 16. The former is closed at the top as indicated at 15^a, and the shells are spaced apart to form an annular generating, mixing and combustion space 17 in which the oil vapor and air mixes, and in and above which the combustion occurs. Each of the shells 15 and 16 has a large number of perforations 18 through which air is drawn into the space 17 where it mixes with the vapor rising from what may be termed the retort below. The shell 16 is surrounded by a thin metal casing 19 having holes 20 near the bottom to admit air to the interior. The shell 16 is flared at the top, as indicated at 20, and at its outer edge joins the rim of the casing 19, and this flaring part or flange 22 is provided with a row of rather large perforations 21 which will admit air from the space below and deliver the same to the flame at the top of the combustion space 17.

The base trough is provided with a flange 23 to center and confine the bottom plate 11 and the casing 19, and the shells 15 and 16 rest upon and are centered by shoulders 24 cast in the bottom plate 11. The shell 16 is also stiffened by vertical ribs 25, on the outside. The various details may be modified in many ways, within the scope of the invention.

A burner so constructed is found to have decided advantages. An outside starter may be used, but when the starter shown is used, sufficient oil is allowed to enter the trough 8 to saturate the wick 14 which is lighted and the heat imparted to the V-shaped channel 12 will start the generation or production of vapor which mixes with some air entering through the openings 9 and 10 and the vapor flows through the holes 13 into the space 17 where combustion takes place, this combustion being completed by air drawn in through the holes 18 in the shells 15 and 16, and as combustion proceeds these shells become highly heated and a very inflammable gas results, the space 17 being filled more or less with flame which issues at the top. In many burners of this type pressure is employed, either pressure on the air or pressure on the oil, but I have found that superior results are obtained by a natural draft induced through the holes 18 in the shells. The holes 21 in the top flange of the shell 16 serve a useful function by supplying heated air to the flame at the top of the burner, and also relieving the air pressure which would otherwise rise in the space between the shell 16 and the outer casing 19 and cause a blowing action which would be detrimental to complete combustion. By the means shown all blowing action is avoided, and the hydro-carbon

vapor generated has time, and sufficient oxygen, to be completely consumed with a blue flame and without yellow "points" often seen in vapor burners, which denote incomplete combustion and result in the production of soot. It will be appreciated that as combustion proceeds the air within the central tube 15 as well as between the tubular members 16 and 19 becomes highly heated, which is advantageous for combustion purposes and in forming a combustible mixture. The flame will rise or fall, to some extent, in the space 17, dependent upon the amount of vapor generated and upon the amount of oil fed to the burner, the feed being under the control of the valve 7.

It will be noticed that the perforations 13 are rather small and numerous, and the purpose thereof is to atomize and distribute the vapor rising from the oil in the trough-shaped base of the burner in such condition that it will readily and completely unite or mix with the air admitted through the air holes in the shells.

I claim:

1. A burner having a pair of inner and outer spaced circular upright shells provided with air holes through the same and means to supply oil vapor to the bottom of said space, the outer shell having an outwardly and upwardly flared part at the top provided with air holes.

2. A burner comprising an oil trough having air holes in the side thereof, a bottom burner plate having a V-shaped channel depending in said trough, the sides of said channel being perforated, and inner and outer shells standing upon said bottom plate at opposite edges of said channel, said shells having air holes and the space between said shells being open at the top.

3. A burner comprising an oil trough having air holes in the side thereof, a bottom burner plate having a V-shaped channel depending in said trough, the sides of said channel being perforated, and inner and outer shells standing upon said bottom plate at opposite edges of said channel, said shells having air holes and the space between said shells being open at the top, and an outer casing enclosing and spaced from the outer shell, said casing having air inlets at the bottom and the space between the outer shell and the casing having air outlets at the top.

In testimony whereof, I affix my signature in presence of a witness.

CLYDE W. MUMMERY.

Witness:

GEO. E. TEW.