March 27, 1928. 1,663,753

J. E. FOWLER

OIL BURNER

Filed Oct. 28, 1926

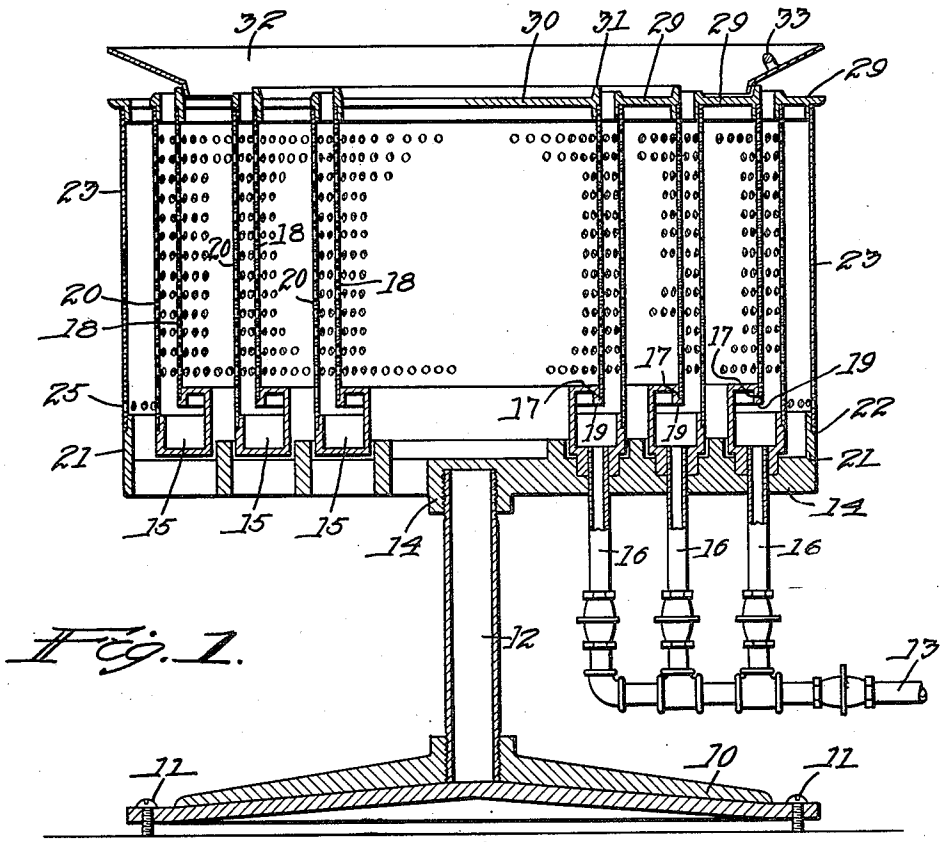

Fig. 1.

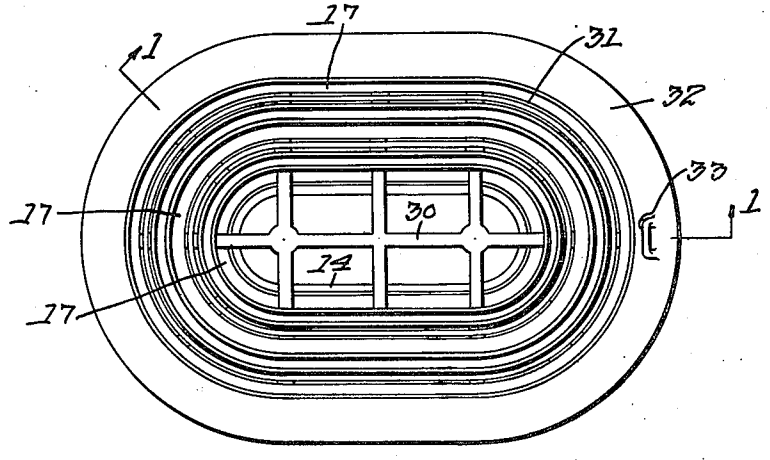

Fig. 2.

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UNITED STATES PATENT OFFICE.

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OIL BURNER.

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This invention relates to an oil burner particularly designed for use in existing stoves and furnaces, although capable of general use.

The principal objects of the invention are to provide a burner with oil troughs wide at the bottom so as to increase vaporization and high on the inside to prevent the escape of vapor and its burning on the inside of the burner and to permit burning for a long time without cleaning; to provide a construction which burns even all around the burner whether the flame is high or low; to provide an outside wall with a single row of air holes around the bottom to prevent the vapor from escaping through the perforated wall and burning on the outside and to produce a hotter flame, thereby increasing vaporization, heat and efficiency; to provide a burner which can be placed in the ash pit of a stove in which the burner may be installed; to provide the burner with a plurality of concentric burning units; to provide a deflector to force the flame and heat outwardly thereby spreading the heat over a larger surface; to provide a burner which may be formed either cylindrically or of elliptical shape to conform to the shape of the stove or furnace in which it may be used, and in general to provide a burner of convenient shape and construction for the principal uses referred to above and increasing the efficiency and cleanliness in the use of this class of burner.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which—

Fig. 1 is a central longitudinal sectional view of a preferred form of multiple burner, constructed in accordance with this invention on the line 1—1 of Fig. 2; and

Fig. 2 is a plan of the same on a reduced scale.

It is to be understood that this burner can be placed in the ash pit of a heater or stove and for that reason I have provided it with a base 10 having adjusting screws 11 at the edges, preferably at three or four points, so as to adjust and level the burner within the device in which it is installed. When used in a stove the grate is removed and this base is put in the ash pit and leveled up and adjusted to the proper height.

This base supports at the center a standard 12 shown in the form of a hollow column and threaded at the upper and lower ends. At the upper end is mounted a support 14 of the shape which it is desired to use. In this instance the shape is shown as elliptical or oblong. This support is of skeleton form having radiating connecting arms, between which air flows for combustion.

On the support are carried a series of oil receiving rings 15 of cast metal preferably. These are all of oblong shape in the form shown, each having an inner wall projecting above the outer wall and turned inwardly and extending down vertically at a point about one-half way between the inner and outer walls and terminating in a downwardly extending flange having a square shoulder 17.

It will be seen that I have shown three of these oil rings and that they are all of the same shape in this instance, namely elliptical, or oblong with semi-circular ends, spaced equally apart and receiving liquid fuel through pipes 16. These supply pipes are all connected with a common supply pipe 13 and proper valves are provided for shutting off the entire supply or controlling the supply through each of the pipes 16.

The outer wall of each oil ring is formed with an annular shoulder 19 and on the shoulders 17 and 19 rest perforated walls 18 and 20, constituting the walls of the burner between which the flame is guided upwardly and dispersed over a wide area on account of the nature of these walls. These walls are all of the general shape of the burner as described above.

In the form illustrated there are three burners. On the outside of the support 14 is an integral upwardly extending wall 21 having a shoulder 22 in which is received an outer wall 23. This wall 23 is arranged in spaced relationship to the outer wall 20 of the outer burner and is unperforated except that it is provided with a row of perforations 25 near the bottom for the admission of air. The space between this outer wall and the outer wall 20 of the outside burner constitutes an air chamber which receives currents of air constantly through the small perforations 25 to supply air for combustion. Also air passes up through the skeleton support 14 inside and outside the walls 18 and 20 to furnish oxygen for the various burners.

On the upper edges of the walls 18, 20 and 23 is supported a skeleton cover comprising three rings 29 which are recessed to receive the tops of the several walls, 18, 20 and 23

and a central plate 30 similarly recessed to receive and be supported by the inner wall 18 and correspondingly shaped. This cover has a series of upwardly projecting flanges 31 of the shape indicated in Fig. 2 which are adapted to support a tea kettle, wash boiler or cooking utensil as may be desired.

Mounted on the next to the outer ring 29 is a deflector 32 which is separate from the other parts and merely held by one of the projecting flanges 31 in which its lower part fits. It is provided with a handle 33 for use in lifting it off when desired. The outer wall of this deflector is conical as shown overlying the top of the outer burner. It is arranged to deflect the heat and flame outwardly to give a spreading effect and utilize this burner more fully for heating the outer parts of any cooking utensil which is used on it.

When the outer burner is to be lighted, this deflector has to be removed. The several burners are turned on, as many of them as may be desired, and are lighted by passing a lighted taper or match into the several spaces between the walls 18 and 20.

The general construction and arrangement increases vaporization, prevents the vapor from escaping or burning at the inside of the inner walls 18 or the other sides of any of the walls 20 or 23. In this manner the heat is confined in the burner so that its intensity is increased. The outer wall 23 keeps both the flame and heat inside until it ascends to the top where it is to be utilized.

The oil troughs are so shaped that they do not require frequent cleaning and the vapor does not escape through the perforated cylinders and burn inside the walls 18, but the flames issue from points between the two shoulders 17 and 19, and may burn upwardly in the narrow space between the two walls 18 and 20. On account of the perforations the flame will eventually get sufficient oxygen for the oil and thus secure a high degree of efficiency.

It will be understood that, although I have emphasized the multiple burner combination and the oblong shape, and illustrated and described only one form of the invention, I am aware of the fact that the other features can be used by any person skilled in the art independently of these features without departing from the scope of the invention as expressed in the claim.

Therefore I do not wish to be limited to the details shown, but what I claim is:—

In an oil burner, the combination of an oil ring having an outer wall provided with a shoulder thereon and an inner wall extending higher than the outer wall and extending outwardly toward the outer wall and then downwardly and provided with a shoulder in its outer surface, whereby the space for the discharge of oil or flame is located at an inclination between the downwardly extending flange and the top of the outer wall, and a pair of perforated walls supported by said shoulders for receiving the flame and products of combustion.

In testimony whereof I have hereunto affixed my signature.

JOSEPH E. FOWLER.