Oct. 14, 1924. 1,511,904

J. R. NICHOLSON

OIL BURNER

Filed June 11, 1923

FIG. 1.

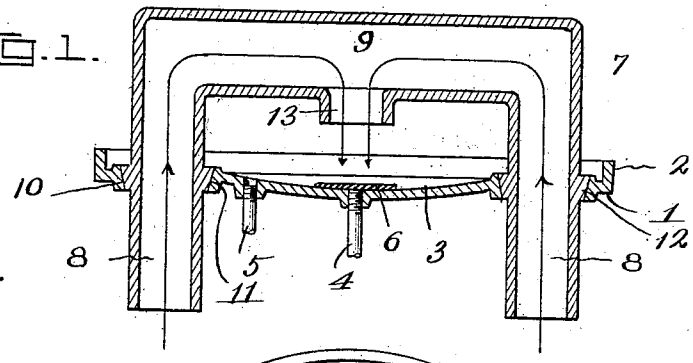


FIG. 2.

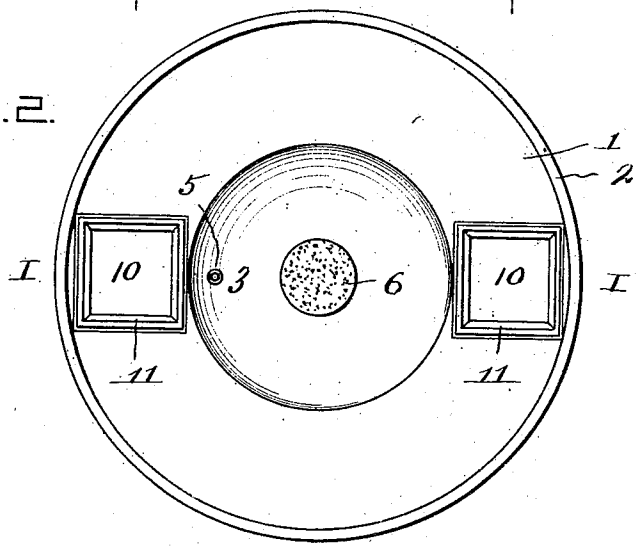


FIG. 3.

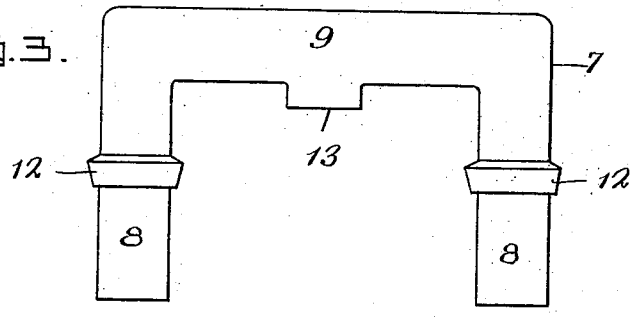
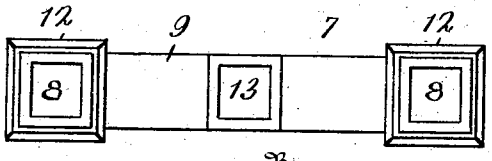


FIG. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH R. NICHOLSON, OF WICHITA, KANSAS, ASSIGNOR TO FRED A. BESSIRE, OF WICHITA, KANSAS.

OIL BURNER.

Application filed June 11, 1923. Serial No. 644,612.

To all whom it may concern:

Be it known that I, JOSEPH R. NICHOLSON, a citizen of the United States, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Oil Burners, of which the following is a specification.

This invention relates to oil burners of the character adapted more particularly for use in stoves and furnaces, and one object is to provide a burner consisting of but few parts, which are inexpensive to manufacture and can be readily installed in the fire-pot of a stove or furnace for domestic purposes.

A further object is to provide a burner which is safe and economical in the use of liquid fuel, and wherein efficient combustion is had, to the end that excessive soot and obnoxious odors are eliminated.

Other objects will hereinafter appear, and in order that the invention may be fully understood, reference will now be had to the accompanying drawing, in which:

Fig. 1 is a vertical section of the burner on line I—I of Fig. 2.

Fig. 2 is a plan view of the burner with its air duct removed.

Fig. 3 is a detail side elevation of the air duct forming a portion of the burner.

Fig. 4 is an inverted plan view of the air duct.

In carrying out the invention a plate 1 is employed, having an upwardly-extending marginal flange 2 and a centrally-disposed, saucer-like depression 3.

4 designates a feed pipe leading from an oil tank, not shown, to the lower central portion of the depression 3 in the plate 1. The usual valves for controlling the flow of oil through the pipe 4 may be employed, but as they form no part of the present invention it has not been deemed necessary to disclose them in the drawing.

5 designates an overflow pipe leading from the upper portion of the depression 3 and through which the fuel oil is carried away from the burner in the event that the flame should become accidentally extinguished and thus fail to consume the oil delivered through the feed pipe 4. Any well-known safety device may be used in connection with the overflow pipe 5 for automatically cutting off the supply of oil delivered to the feed pipe 4 and thus avoid danger of explosion from the overflow of oil.

6 designates a flat wick of mineral wool, asbestos or other suitable material which is placed in the central portion of the depression 3 and over the delivery end of the feed pipe 4.

7 designates an air pipe through which air is supplied to the flame to efficiently support combustion. Said air pipe is of substantially inverted U-form and consists of two vertical legs 8 and a transverse leg 9 uniting the upper ends of the legs 8. The legs 8 are open at their lower ends and extend below the plate 1, which has diametrically-opposed openings 10 surrounded by downwardly tapered seats 11 in which corresponding shoulders 12 on the legs 8 snugly fit, so that air cannot pass between the seats 11 and said shoulders 12 and interfere with the operation of the burner. The lower central part of the transverse leg 9 of the air pipe 7, has a discharge nozzle 13 for directing air downwardly upon the flame.

In practice, the plate 1 may be circular as shown or rectangular to fit within the fire box of a stove or the fire pot of a furnace. The plate 1 is installed on a level with the grate and the space between the flange 2 and the side walls of the fire box or pot is hermetically sealed, so that all air reaching the flame at the burner must pass through the air pipe 7. In starting the burner, oil is admitted through the feed pipe 4 to the wick 6 on the plate 1. After the wick 6 becomes saturated it is ignited with a match, or the like, and the flame thus produced spreads around the air pipe 7 and thus heats the air passing upwardly therethrough from the ash pit. The heated air is discharged downwardly from the nozzle 13 directly upon the flame with which it thoroughly commingles, so that a blue flame, denoting perfect combustion, is had. The intense heat produced by the flame eliminates excessive soot and efficiently consumes all of the oil delivered to the burner and thereby overcomes the obnoxious odors which arise from unburned oil. As the heated air discharged from the nozzle 13 is directed downwardly the heat produced by the blue flame is forced downwardly, thereby thoroughly heating the stove or furnace before escaping through the chimney.

From the foregoing description it is apparent that I have produced a burner embodying the advantages above pointed out; and while I have shown and described the preferred form of the invention, I reserve the right to make such changes in the construction, combination and arrangement of parts as properly fall within the spirit and scope of the claim.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

An oil burner consisting of a plate having an upwardly-turned marginal flange and a shallow central depression, means for conducting liquid fuel to said depression, a suitable wick arranged in the depression, an overflow pipe leading from the plate, and an inverted U-shaped air duct consisting of two legs extending through and below said plate, tapered shoulders on said legs which fit within corresponding seats in the plate, and a transverse leg connecting the upper portions of the first-mentioned legs and having a downturned discharge nozzle arranged in axial alinement with the axis of said shallow depression.

In testimony whereof I affix my signature, in the presence of two witnesses.

JOSEPH R. NICHOLSON.

Witnesses:
W. D. Jochems,
Hazel L. McClintock.