Nov. 21, 1950 S. S. BENNETT 2,530,675

PAN TYPE VAPOR BURNER

Filed Jan. 3, 1946

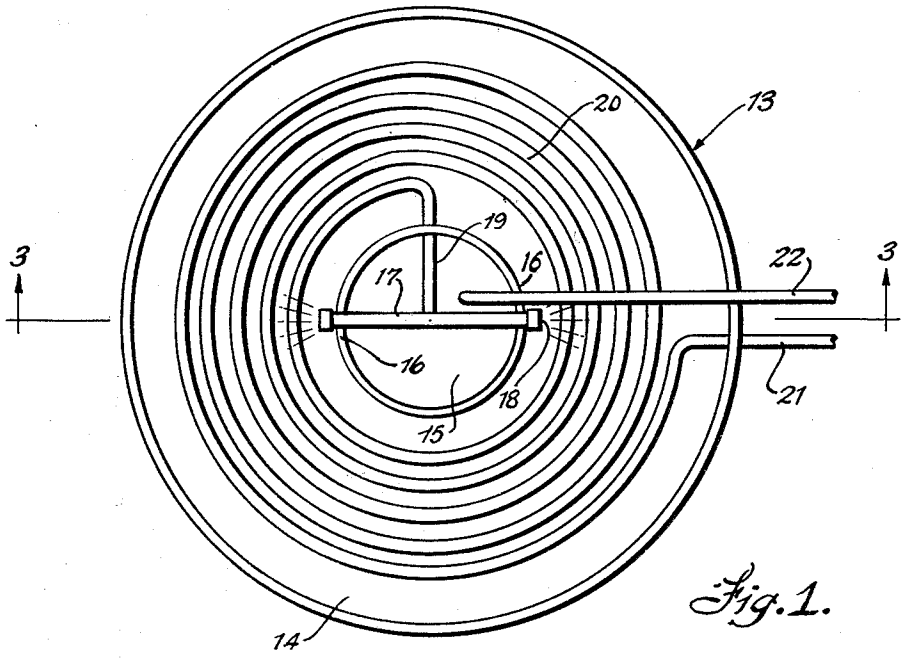
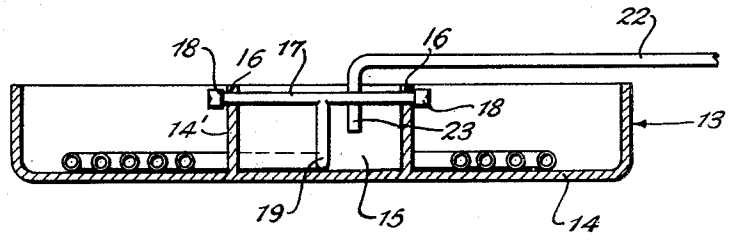


Fig. 1.

Fig. 2.



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PAN TYPE VAPOR BURNER

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1 Claim. (Cl. 158—66)

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This invention relates to a liquid fuel burner and has for its object to burn liquid fuel for domestic and other heating purposes efficiently and economically.

Another object is to vaporize the fuel admitted to the burner to insure rapid and complete combustion thereof as well as a high degree of space utilization efficiency.

A further object is to commingle uniformly fuel vapor and air admitted to the burner so as to attain uniform combustion together with as low a fuel air ratio that may be attained with substantially complete combustion.

The above and other objects may be attained by employing this invention which embodies among its features a shallow pan, an upstanding annular wall within the pan that is surrounded by a combustion space and defines an air receiving chamber therein, means for admitting air into the chamber for subsequent radial flow to the combustion space, and fuel vaporizing and fuel discharge means in the combustion space.

Other features include the fuel vaporizing means comprising a convolute coil in the combustion space for movement of fuel therein towards the center thereof, and the vapor discharge means consisting of nozzles for directing the vapor radially outward from the chamber into the combustion space.

In the drawings:

Figure 1 is a top plan view of the fuel vaporizer and burner adapted to be fitted in a furnace or other heating unit.

Figure 2 is a sectional view taken substantially on the line 3—3 of Figure 1.

Reference is now made more specifically to the accompanying drawings, wherein like numerals designate similar parts throughout the various views, and in which at 13 is designated generally the improved burner for use with furnaces or the like, not shown. and which comprises a shallow pan 14 formed centrally with an upstanding wall 14' defining an air receiving chamber 15. The upper edge of the wall 14' is provided at diametrically opposed points with recesses or relatively wide notches 16 in which a transversely extending pipe 17 fitted at opposite ends with fuel vapor discharge nozzles 18 is adapted to seat. Opening midway of the length of the pipe 17 to the interior thereof is a vapor feed pipe 19 which as illustrated in Figures 1 and 2 extends downwardly and thence radially through the wall 14' and is connected to a horizontally disposed convolute fuel vaporizing coil 20 the opposite end of which is connected to a fuel feed pipe 21 for connection to a source of fuel supply, not shown. Extending radially into the chamber 15 of the burner 13 is an air feed pipe 22 terminating in a downwardly directed leg or nozzle 23 which directs the air entering said pipe against the bottom of the chamber 15, which serves as a distributor to secure a uniform flow of air up through the

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upper open end of the chamber 15 and recess 16.

It will thus be seen that there has been provided a compact and simple burner that may be readily built in new heating devices utilizing liquid fuel, or used to convert other liquid or solid burning devices to the use of the same. For example, the subject matter of the present invention may be conveniently placed on the grates of conventional coal burning furnaces.

The operation of the present invention will be easily understood. Fuel entering the burner through the pipe 21 will be vaporized in the coil 20 and thence discharged by the nozzles 18 radially outward from the chamber 15 into the combustion space. Air also passes radially outward from the chamber 15 to the combustion space with the fuel vapor for commingling therewith and consumption of the same, such fuel consumption serving to vaporize the oncoming fuel in the coil 20. The smooth and uniform passage of air from the chamber is assured by the air being admitted thereto through the pipe leg 23 adjacent its bottom.

From the foregoing, the construction and use of the invention will be apparent and further description is not seen to be necessary. It is intended that minor changes may be made which do not depart from the scope of the appended claim.

I claim:

In a liquid fuel burning system a liquid fuel burner comprising a relatively shallow pan, an upwardly extending centrally located wall in said pan forming a centrally located air receiving chamber surrounded by an annular chamber, a convolute fuel vaporizing coil on the bottom of said annular chamber, fuel vapor discharge nozzles carried by the wall of the centrally located air receiving chamber, means coupling the inner end of the coil to the vapor discharge nozzles and means for introducing air under pressure to the air receiving chamber.

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