

J. HENNING & H. A. NELSON.

KEROSENE BURNER.

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1,037,003.

Patented Aug. 27, 1912.

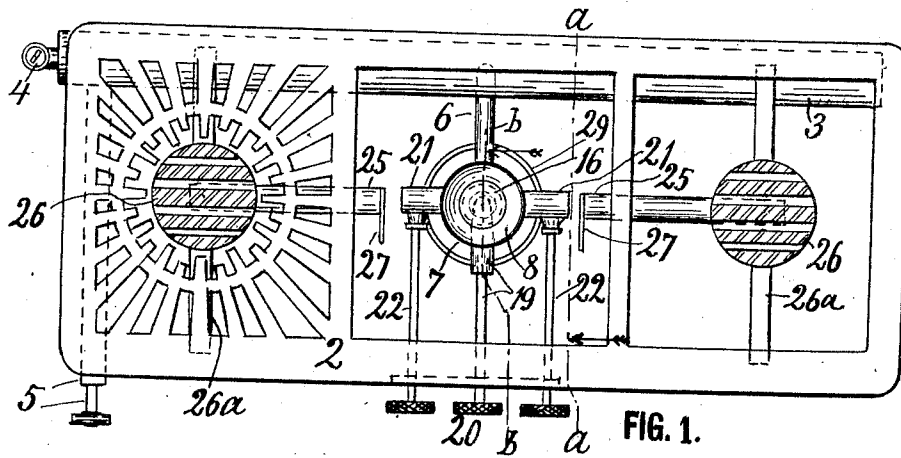


FIG. 1.

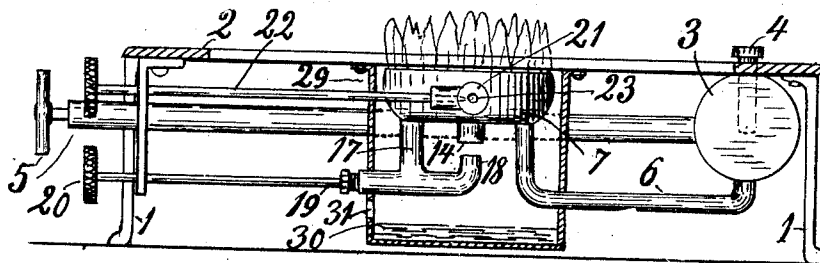


FIG. 2.

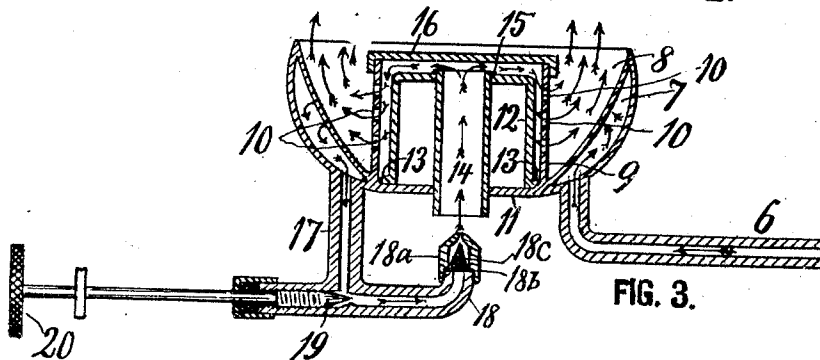


FIG. 3.



FIG. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN HENNING AND HJALMAR A. NELSON, OF ST. PAUL, MINNESOTA.

KEROSENE-BURNER.

1,037,003.

Specification of Letters Patent,

Patented Aug. 27, 1912.

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To all whom it may concern:

Be it known that we, JOHN HENNING and HJALMAR A. NELSON, subjects of the King of Sweden, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Kerosene-Burner, of which the following is a specification.

Our invention relates to devices for burning kerosene in the form of gas or vapor; and the main object is to provide a highly efficient vaporizer, or generator, in such burners, especially for kerosene burners used in stoves, engines and other devices having use for a strong heat.

In the accompanying drawing,—Figure 1 is a top view of a simple cook stove provided with our invention for burning kerosene; the stove is shown as having three burners, of which the middle one constitutes also the vapor generator; the skeleton portion of the top plate of the stove is shown around the burner farthest to the left, but omitted from around the other two burners. Fig. 2 is an enlarged cross section on the line *a-a* in Fig. 1, with side of the inclosure 29, broken away about as far as to the line *b-b*. Fig. 3 is a further enlarged section on the line *b-b* in Fig. 1 with the inclosure 29 omitted. Fig. 4 is an enlarged inner end view of either one of the flues 25 shown in Fig. 1.

Referring to the drawing by reference numerals, 1 designates the legs, 2 the top plate and 3 the oil tank of a kerosene-burning stove, or "plate", as the simple form of such stoves is often termed. The tank is filled through an aperture having a screw cap or screw plug 4 closing it. The tank is also provided with a hand pump 5, by which to compress air upon the top of the kerosene in the tank, and thus cause said oil to pass through a pipe 6 into the vaporizing or vapor generating chamber. Said vapor chamber or generator is best shown in Fig. 3, to consist of an annular vaporizing chamber 7, which surrounds an annular combustion chamber 8, whose inner cylindrical wall 9 is provided with several circular rows of perforations 10. Within the cylindrical wall 9, which is integral with the walls of the chamber 7 and the bottom 11, stands upon said bottom a removable cup-shaped shell 12, having about its base an annular flange 13, which fits snugly within the cylinder 9 and leaves a space above itself between the cylinder and the shell.

Fitting snugly in a central aperture in the bottom 11 and in the top of the shell 12 is an open vertical mixing tube 14, whose upper end has a slight annular projection 15, by which the tube is suspended. The top of the perforated cylinder 9 is closed by a removable cap 16.

Diametrically opposite from the intake pipe 6 the vaporizing chamber has an outlet pipe 17, terminating in a nozzle 18 which is arranged directly below the mixing tube 14 and is controlled by a needle valve 19, having a hand-wheel 20. Said nozzle comprises a tip 18^a, holding by its shoulder 18^b a fine wire-cloth cone 18^c, which prevents carbon from reaching and clogging the fine opening in the top of the tip.

The vaporizing chamber 7 may be provided with several, in the present instance two, lateral nozzles 21, controlled by needle valves 22 and arranged with their openings 23 (see Fig. 2) in line with openings 24 (see Fig. 4) in the ends of mixing tubes 25, whose other ends hold burners 26 of any ordinary or suitable construction for burning oil vapor. 26^a are frame bars supporting said burners. The intake to each mixing tube 25 is provided with an air valve 27 for the regulation of air passing in through the apertures 28 and mixing with the vapor.

Suspended from the plate 2, or otherwise mounted, is an inclosure 29 which aids in keeping the vapor generator warm. In the bottom portion of said inclosure is provided a small pan 30 and an air inlet 31 near above it.

In the operation of the invention the tank 3 is supplied with kerosene and air pressure applied thereto by the pump 5. A small quantity of either alcohol or gasoline is put into the pan 30 and burned, so as to heat the generator and thereby make it active; the valve 19 is then opened so as to let the vapor generated in the chamber 7 pass out of the nozzle 18 and circulate as shown by the arrows in Fig. 3, up through the mixing tube 14, outward under the cover 16 and down and outward through the perforations 10 and into the combustion chamber 8, where it is ignited and gives a flame, as indicated at the top of Fig. 2. Said flame being at first thrown against the inner side wall of the vaporizing chamber 7 it heats the same and causes fast vaporizing therein, especially since said wall by the special form and location presents a large heat-ab-

sorbing surface. The flame then passing upward through the open top of the combustion chamber may be used for cooking, baking or other purposes.

- 5 As the chamber 7 is constantly during action ejecting vapor, it receives kerosene through the pipe 6 in such quantity as may be required and regulated by the valve 19. While the generator is thus in action one or
10 more valves arranged as those marked 22 may be opened and vapor supplied to burners arranged similarly to those indicated by the numerals 26; and thus one vapor generator will supply several burners.

- 15 What we claim is:

In a burner of the kind described, the combination with an upright perforated cylinder having a bottom with a central aperture, of an annular vaporizing chamber surrounding said cylinder and spaced there-

from to form a combustion chamber, said cylinder and vaporizing chamber being connected at the bottom, a removable cap on said cylinder, a cup shaped shell within the cylinder and spaced therefrom, said shell 25 having a central aperture in its top, a mixing tube suspended from the shell and fitting in the apertures in the shell top and cylinder bottom, means for supplying oil to the vaporizing chamber, and a valve controlled conduit leading from the vaporizing chamber and discharging into the mixing tube. 30

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

JOHN HENNING.

HJALMAR A. NELSON.

Witnesses:

A. M. CARLSEN,

THEODORE SANDERS.