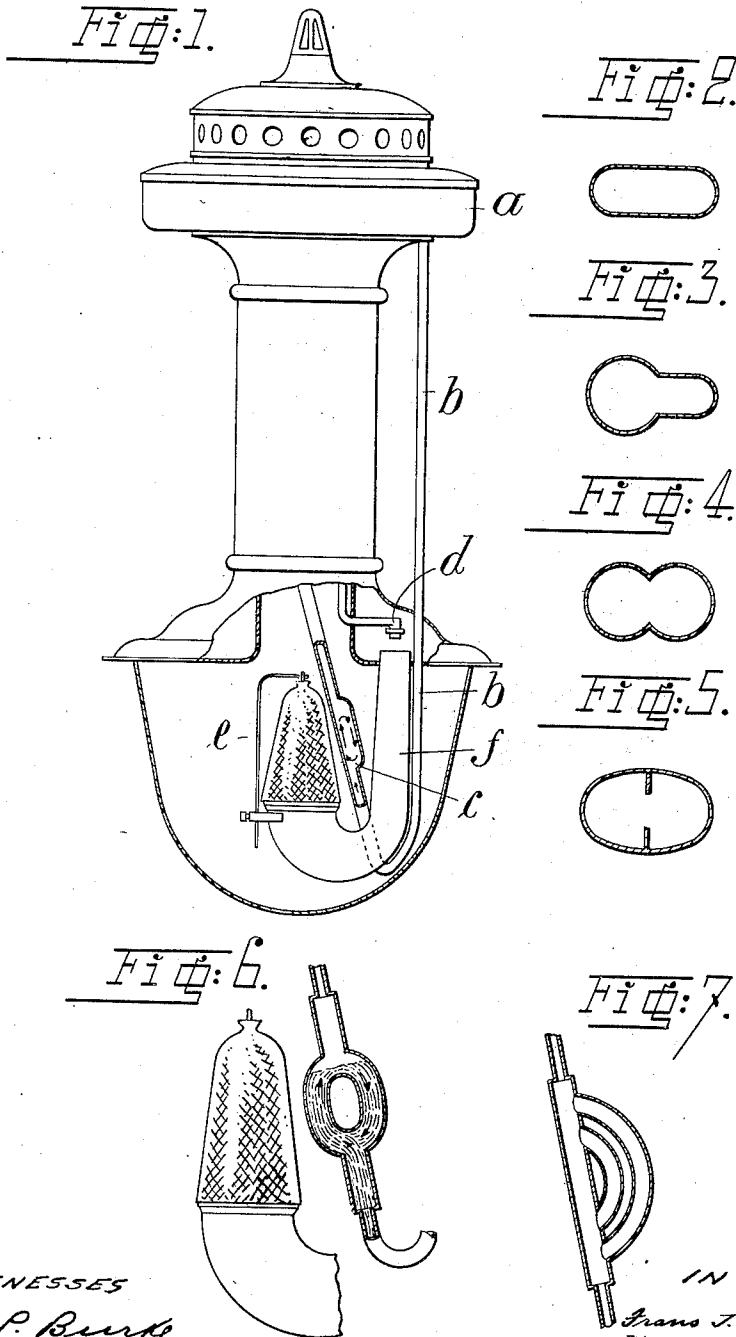


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 VAPORIZER FOR INCANDESCENT LIQUID FUEL LAMPS.
 APPLICATION FILED FEB. 2, 1910.

1,005,320.

Patented Oct. 10, 1911.



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1,005,320.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed February 2, 1910. Serial No. 541,610.

To all whom it may concern:

Be it known that I, FRANS JOHAN HENRIK RUSTIGE, engineer, a subject of Sweden, residing at Stora Essingen, near Stockholm, Sweden, have invented new and useful Improvements in Vaporizers for Incandescent Liquid-Fuel Lamps, of which the following is a specification.

The present invention relates to vaporizers for incandescent liquid fuel lamps (especially petroleum), and has for its purpose to arrange such vaporizers so that the flame produced burns steadily, which of course is a chief condition for a good lamp.

As known there are at present used so called self-pressure-lamps, where the liquid fuel is conducted to the vaporizer from a tank, situated higher than the vaporizer, or where the pressure is produced automatically by the combustion. It is evident, that the variations in the violence of the gas development within the vaporizer (which usually consists of a single cylindrical pipe or hollow body) will especially exercise their influence in lamps of that kind, in which the fluid pressure balancing the pressure of the gas produced in the vaporizer is low in comparison with that in such lamps, in which the fuel is forced to the vaporizer by compressed air or another compressed gas. The variations of pressure in the gas produced in the vaporizer of such lamps cannot usually be observed on the flame, and consequently means for producing a uniform vaporization will in the first place be necessary in self-pressure-lamps. For effecting a sufficiently uniform vaporization in such lamps several equalizing means have hitherto been used, such as asbestos-wicks of different kinds, wire-nets, floating- and throttle-valves, gasometers, etc.; all these devices, however, complicating the construction of the lamps and rendering the attendance of them more difficult, inasmuch as the said devices must often be changed or inspected. It has now been proved that a uniform vaporization, and consequently a steadily burning flame, can be obtained in such lamps by giving the cross section of the vaporizer an elongated form, instead of the circular one hitherto used, and by directing one of the narrow sides of the vaporizer pipe toward the flame. The reason that such a form of cross section of the vaporizer, without the assistance of any equalizing means, produces so uniform a

vaporization of the fuel, that the stability of the light becomes not affected, depends, no doubt, upon the comparatively great difference between the temperature of the side of the vaporizer on which the flame acts directly and that of its opposite side, the content of the vaporizer thereby being brought into a circulating motion, and the gas production becoming entirely continuous, as a greater quantity of fluid passes the vaporizing surface, and the gas produced in the fluid ascends to the surface more easily, whereby it is deprived of its disposition to put the fluid into an upward and downward oscillating motion. The circulating motion would also be obtained in a vaporizer of circular cross section, but in such a case the vaporizer must have so great proportions that it hardly would be suitable in practice.

In the accompanying drawing a self-pressure-lamp for petroleum provided with a vaporizer according to the present invention is shown in a side view, partly in section in Figure 1, while Fig. 2 illustrates the simplest cross section of the vaporizing pipe; Figs. 3, 4 and 5 are modified forms of the vaporizer, also in cross sections, and Figs. 6 and 7 illustrate two different forms of vaporizers in longitudinal sections.

In Fig. 1 *a* is the petroleum tank, *b* the pipe for conducting fluid to the vaporizer *c*, *d* the discharge opening or nozzle of the latter, *e* the incandescent mantle, and *f* the pipe where the gas and air are mixed.

According to my invention the cross section of the vaporizer is of an elongated form, for instance as shown in Figs. 2 or 3. It has also been proved that the purpose desired can be reached by contracting such a vaporizer at its broad sides in such a manner, that it obtains the shape of an 8 (Fig. 4). The same result, as by contraction, may be obtained by inserting two longitudinal walls into the vaporizer, as shown in Fig. 5. Further the vaporizer can be constructed with two or more branches, as shown in Figs. 6 and 7. In all these cases the cross section of the vaporizer has an elongated form, which is proved suitable for producing a uniform vaporization, necessary for obtaining a steadily burning flame.

The arrows in Fig. 6 point out the direction of circulation of the fluid within the vaporizer. Of course, the arrangement may also be employed in other lamps than the

self-pressure-lamps described although, as beforesaid, it is of the greatest importance to that kind of lamps.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:

1. In incandescent liquid fuel lamps an upright vaporizer tube having an intermediate portion of elongated cross section, said tube being positioned adjacent to the burner and having the longer axis of said intermediate portion directed toward the burner, the interior of said tube being free from any filling material.

2. In incandescent liquid fuel lamps an upright vaporizer tube having an intermediate portion of elongated cross section, the longer axis of which is directed toward the burner, said intermediate portion being contracted along the broad sides, the interior of said tube being free from any filling material.

3. In incandescent liquid fuel lamps, an upright vaporizer tube having an intermediate portion of elongated cross section, the

axes of the tubular end portions of said tube being in the same straight line, said tube being positioned adjacent to the burner and having the longer axis of said intermediate portion directed toward the burner, the interior of said tube being free from any filling material.

4. In incandescent liquid fuel lamps, an upright vaporizer tube having an outlet opening and an inlet opening, said outlet opening being in line with and above said inlet opening, said tube having an intermediate portion of elongated cross section, said tube being positioned adjacent to the burner and having the longer axis of said intermediate portion directed toward the burner, the interior of said tube being free from any filling material.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANS JOHAN HENRIK RUSTIGE.

Witnesses:

H. TOLANDER,
BIRGER NORDFELDT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."