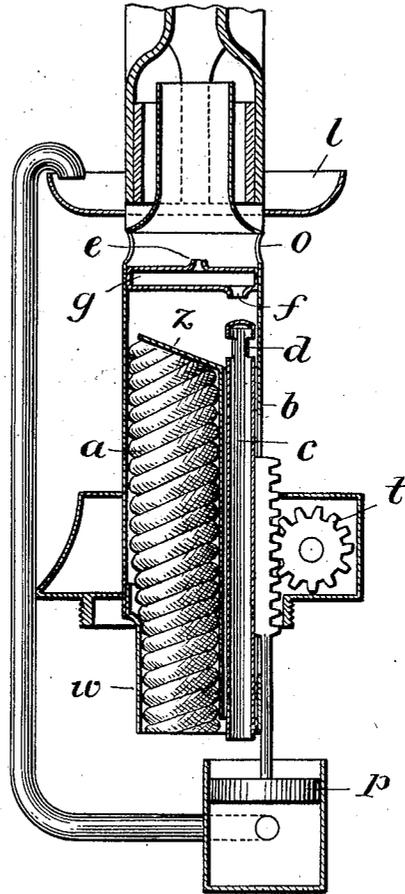


No. 888,024.

PATENTED MAY 19, 1908.

W. LIEDKE & O. RABENHORST.  
SPIRIT VAPORIZER AND BURNER.  
APPLICATION FILED JULY 14, 1905.



Witnesses  
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# UNITED STATES PATENT OFFICE.

WILLIBALD LIEDKE AND OTTO RABENHORST, OF BERLIN, GERMANY.

## SPIRIT VAPORIZER AND BURNER.

No. 888,024.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed July 14, 1905. Serial No. 269,749.

To all whom it may concern:

Be it known that we, WILLIBALD LIEDKE and OTTO RABENHORST, subjects of the King of Prussia, residing at Berlin, Germany, have invented certain new and useful Improvements in Spirit Vaporizers and Burners; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to a new spirit vaporizer and burner presenting features which we will proceed to explain in detail, with reference to the accompanying drawing, in which is illustrated a vertical section through a burner constructed in accordance with the invention.

The burner consists of a wick-tube *a*, the bottom part *w* of which is considerably narrower than the remaining portion; the wick *n* thus sits close against the tube-wall at *w*, while there is a certain amount of space left at the top part *a*. An inclined tongue *z*, at the top of the wick-tube *a*, prevents the wick reaching to the top of the tube. The top of the tube *a* is closed by a hollow plug *g*, having a lateral inlet *f* below and an outlet *e* at the top for the spirit-vapor. The vapor generated rushes through the orifice *e* into an ordinary Bunsen-burner, which differs from other Bunsen-burners only in having strong copper walls, serving to partly conduct the heat of the flame down to the wick-tube, so that vaporization of spirit can go on in this wick-tube. The necessary mixing-air is sucked in through the lateral aperture *o*. The spirit-vapor generated in the wick first enters the space between the tongue *z* and plug *g*, where they become superheated, and flow into the plug *g* itself, where they are further superheated. The object of the wick-tube being narrower at *w*, is to cause the wick to be firmly pressed at such part, so as to prevent spirit-vapor from entering the spirit-reservoir. In the wick-tube, there is also located a thinner tube *b*, directly below the aperture *f* of the plug *g*. This tube *b* communicates with the reservoir, and inside it a tube *c* can be reciprocated by means of a rack and pinion *t*. The tube *c* fits tightly into the tube *b*, and is closed at the top, but

is provided with apertures *d* slightly below such upper part. This tube *c* thus constitutes a valve-stem, which on insertion into the aperture *f* of the chamber *g*, closes the vapor-passage to the collecting-chamber and nozzle *e*.

The rack actuating the tube *c* is connected with the piston *p* of a spirit-pump, so that on lowering the rack, by means of the pinion *t*, spirit is pumped into the heating-tray *l*. At the same time, the tube *c* is drawn down so far into the tube *b*, that the apertures *d* of the tube *c* are closed and the aperture *f* of the vapor-chamber *g* opened.

When the lamp is to be extinguished, the tube *c* must be screwed up by means of the pinion *t*. This causes uncovering of the apertures *d* of the tube *c*, so that the spirit-vapor flows out through the apertures to the reservoir, while the closed top end of the tube *c* simultaneously closes the bottom aperture *f*, of the vapor-chamber *g*.

Having thus described our invention, we declare that what we claim as new is:—

1. In a spirit vapor burner, the combination of a wick tube which is of increased diameter adjacent its upper end, a vapor collector within the upper end of the wick tube, and having in its lower side an aperture for the admission of vapor, a second tube within the wick tube directly below the inlet to the vapor collector and adapted to communicate with a suitable reservoir, a third tube, closed at its upper end, mounted to reciprocate in said second tube and having a lateral aperture adjacent its upper end, and means for reciprocating said third tube to move the lateral aperture therein into or from the second tube, substantially as described.

2. In a spirit vapor burner, the combination of a wick tube which is of increased diameter adjacent its upper end, a vapor collector within the upper end of the wick tube, and having in its lower side an aperture for the admission of vapor, a second tube within the wick tube directly below the inlet to the vapor collector and adapted to communicate with a suitable reservoir, a third tube, closed at its upper end, mounted to reciprocate in said second tube and having a lateral aperture adjacent its upper end, a heating tray, a pump adapted to elevate combustible fluid

to said tray, and connections between the pump piston and said third tube, whereby as the pump is operated said third tube will be reciprocated to open and close the inlet to the vapor collector and move the laterally apertured section of said tube into and from the second tube.

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

WILLIBALD LIEDKE.  
OTTO RABENHORST.

Witnesses:

HENRY HASPER,  
WOLDEMAR HAUPT.