

No. 716,316.

Patented Dec. 16, 1902.

R. E. WALTHER.
INCANDESCENT SPIRIT LAMP.

(Application filed Feb. 26, 1901.)

(No Model.)

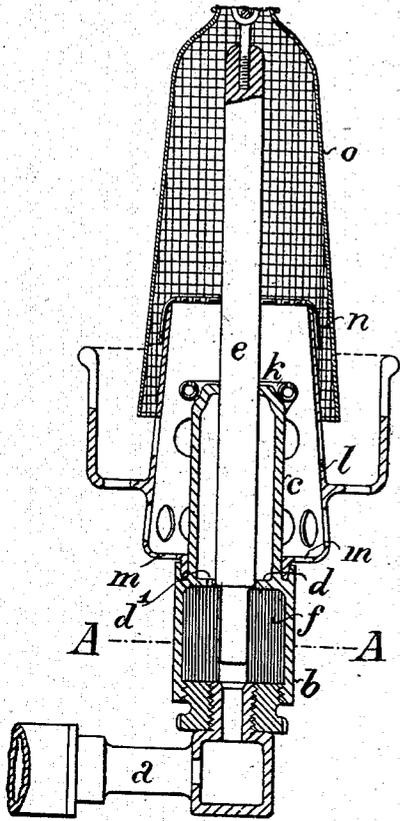


Fig: 1.

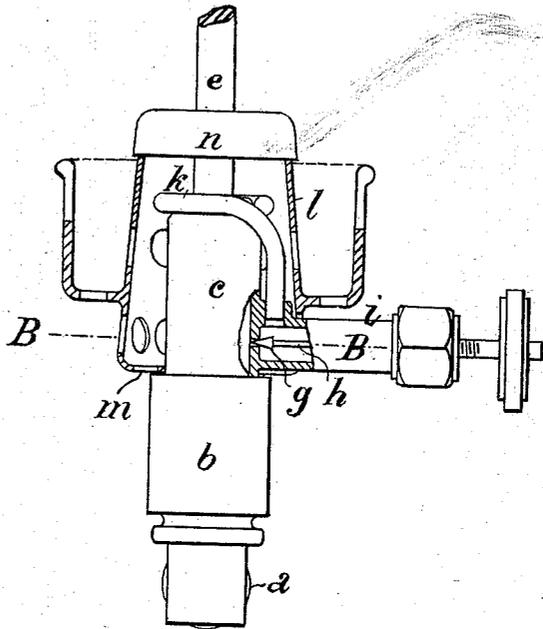


Fig: 2

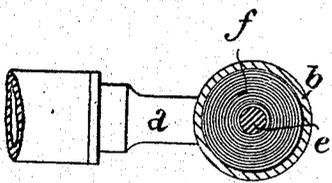


Fig: 3.

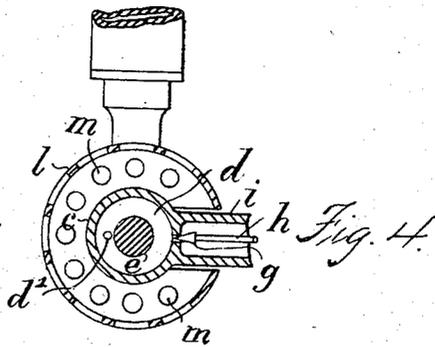


Fig. 4.

Witnesses

S. E. House
Walter Smith

Inventor
Robert Emil Walther
By Briesen Thum

His Attorneys

UNITED STATES PATENT OFFICE.

ROBERT EMIL WALTHER, OF WERDAU, GERMANY.

INCANDESCENT SPIRIT-LAMP.

SPECIFICATION forming part of Letters Patent No. 716,316, dated December 16, 1902.

Application filed February 26, 1901. Serial No. 48,913. (No model.)

To all whom it may concern:

Be it known that I, ROBERT EMIL WALTHER, a subject of the King of Saxony, and a resident of Werdau, Kingdom of Saxony, German Empire, have invented new and useful Improvements Relating to Incandescent Spirit-Lamps, of which the following is a specification.

The object of this invention is to provide a more simple and efficient vaporizing device than heretofore for incandescent spirit-lamps burning without wick; and the invention consists mainly in the use of a pillar of some good heat-conducting material for conducting the heat imparted thereto by its close proximity to the incandescent body into vaporizing-chambers, thus providing for the direct transference of the heat to these chambers.

In carrying out this invention superposed vaporizing-chambers are employed, the lower one of which is fed with the liquid spirit. The spirit is vaporized therein by the heat from the pillar directly transferred thereto, and the vapor rises thence into the upper vaporizing-chamber in order to be there dried or superheated also by the heat transferred direct from the pillar. From the upper chamber the spirit-vapor escapes through an adjustable cut-off device into a ring tube provided with holes, situate inside a dome or hood inclosing one of the vaporizing-chambers. This hood is provided with air-inlet openings, so that admixture of the upwardly-escaping spirit-vapor with the air takes place therein, the mixture issuing thence through the perforated cap of the hood, where it is burned, and thus heats the incandescent body. The lower vaporizing-chamber, to which liquid spirit is supplied, may be provided with means whereby a more rapid transference of heat of the pillar to the liquid and a constant level of the liquid in the chamber may be secured for the purpose of preventing the flame from flickering. The proper and regular burning of the lamp depends upon the heat-conducting quality of the pillar forming the central part of the burner, for which purpose the pillar is preferably made of solid copper of sufficient diameter to give the heat to correspond to the volume of liquid to be constantly vaporized.

The lamp is lighted in the usual way by applying heat externally to the vaporizing-chamber.

In the accompanying drawings the vaporizing device is illustrated by way of example.

Figure 1 is a vertical section of the burner; Fig. 2, an elevation partly in section and taken at right angles to Fig. 1; and Figs. 3 and 4 are respectively cross-sections through A A, Fig. 1, and B B, Fig. 2.

The spirit is conveyed from a container (not shown in the drawings) to the burner by the feed-pipe *a*, which may be provided with a cock or other cut-off device. The vaporizing device consists in the present construction of the lower chamber *b* and the upper chamber *c*, separated from each other by a partition *d*, pierced by a fine orifice *d'*. The pillar *e*, which may be provided at top with a crutch for suspending the incandescent body (the mantle) *o*, extends downward through both chambers *b* and *c*. The lower chamber may contain a spiral *f* of metal gauze in connection with the pillar, which will conduct the heat of the pillar *e* to the spirit and at the same time maintain a definite or fixed level of the liquid in the chamber *b*. The vapor produced rises through the fine perforation *d'* into the upper chamber *c*, in which the heat of the pillar *e* dries or superheats the vaporized spirit.

The wall of the chamber *c* is perforated laterally at a suitable point, and this perforation forms the seat of a valve *g*, which can be opened or closed by means of the screw-threaded spindle *h*. This valve and rod are contained in a tubular chamber *i*, from which branches off the small pipe *k*, which is formed into a ring arranged around the upper chamber *c* and provided with holes on top. The chamber *c* and this ring tube *k* are inclosed within a hood or chamber *l*, provided at its lower end with air-inlet openings *m* and at the top with a perforated cap *n* of suitable material.

To light the burner, heat will be applied in any convenient manner to the chamber *b* to vaporize the spirit therein. The vapor then passes into *c*. On opening the valve *g* the spirit-vapor will issue from the chamber *c* and pass to the ring pipe *k*. On issuing from which it mixes with air and becomes a combustible

mixture, which when lighted burns at or above the cap *n* and inside the incandescent body. The heat evolved by the burning gas is directly transferred to the vaporizing and drying chambers by the pillar *e*, which may carry the incandescent body, as above mentioned. The incandescent body may, if desired, be carried by a support either inside or outside, and the heat may be transferred by one or more solid or hollow pillars arranged inside the incandescent body. The arrangement of solid pillars or closed tubes for transferring the heat to the vaporizing and drying chambers possesses important advantages over tubes inside the incandescent body and which are used for feeding the liquid to be vaporized, as these small tubes possess the disadvantage of getting choked up, necessitating cleaning, and are also inconvenient on account of their complicated structure.

The arrangement of pillars or closed tubes according to the present invention is simple in practice, reliable in operation, and there are no narrow tubes to require cleaning.

I claim—

1. In an incandescent spirit-lamp, the combination of a mantle, a heat-conducting pillar inclosed by said mantle, a vaporizing-chamber for spirit, a drying-chamber for the vapor-spirit, both chambers receiving the downward-prolonged part of said pillar, a ring-shaped vapor-outlet in form of a pipe *k* that leads from the drying-chamber and is bent into a ring shape around the upper end of said drying-chamber and which is perforated to allow the escape of the vapor and a hood *l* or mix-

ing-chamber inclosing the vapor-outlet, to effect the mixing of the air and vapor and the delivery thereof to the mantle.

2. In a vapor-burner, the combination of the chambered body, the heat-conducting pillar extending into said body, a valve-casing adapted to communicate with the interior of said body, a gas-outlet pipe connected with the interior of the valve-casing and formed with a perforated ring surrounding the pillar at the top of the body, a regulating-valve controlling the connection of the chamber in the body with the gas-outlet pipe, a hood provided with an air-inlet and surrounding the top of the body and the said perforated ring, and a perforated cap for said hood.

3. A vaporizing device for incandescent spirit-lamps burning without wick, consisting of a heat-conducting pillar an evaporating-chamber, a drying-chamber, both chambers receiving the downward-prolonged part of said pillar, a ring-shaped perforated pipe for the issue of the evaporated spirit into the incandescent body, a regulating-valve for such issue and a hood *l* provided with air-inlets and a perforated cap for the evaporated spirit to pass and to mix with air before entering the incandescent body.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 11th day of February, 1901.

ROBERT EMIL WALTHER.

Witnesses:

LOUIS C. SCHNEIDER,
FREDERICK J. DIETZMAN.