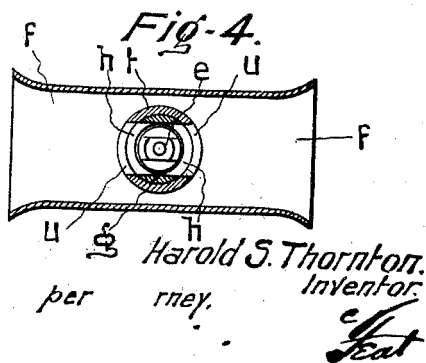
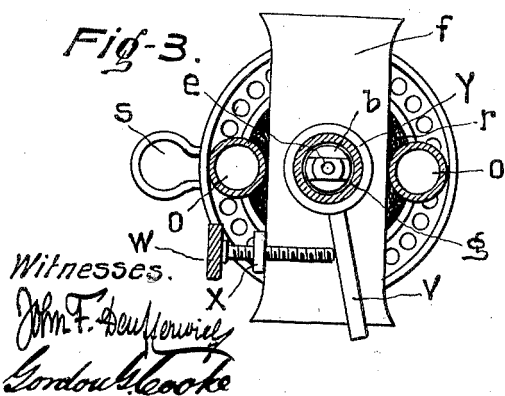
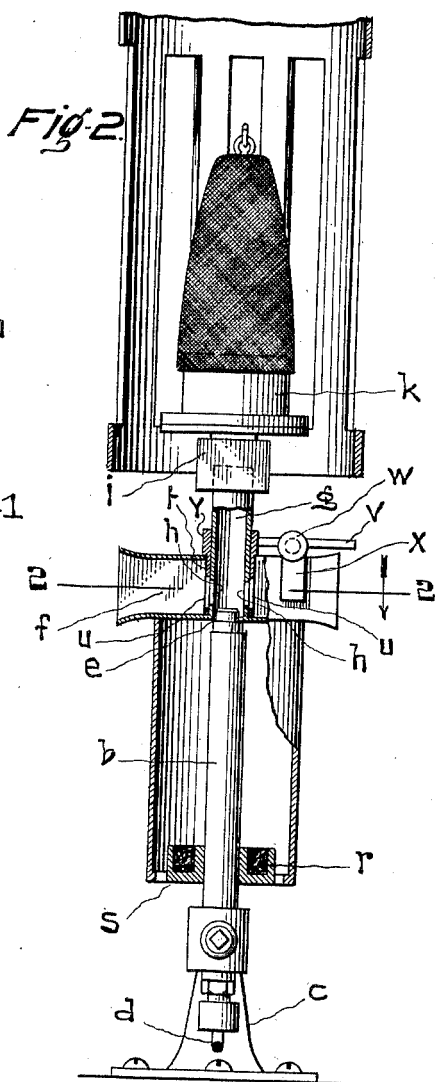
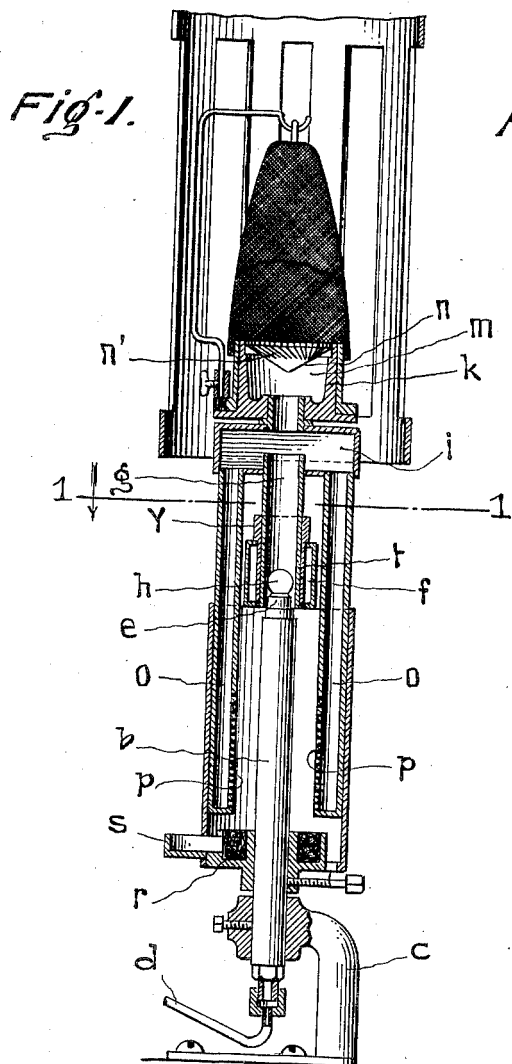


H. S. THORNTON.
VAPOR BURNER.
APPLICATION FILED MAR. 25, 1912.

1,076,718.

Patented Oct. 28, 1913.



UNITED STATES PATENT OFFICE.

HAROLD SYDNEY THORNTON, OF LONGUEUIL, QUEBEC, CANADA.

VAPOR-BURNER.

1,076,718.

Specification of Letters Patent.

Patented Oct. 28, 1913.

Application filed March 25, 1912. Serial No. 686,063.

To all whom it may concern:

Be it known that I, HAROLD SYDNEY THORNTON, a resident of Longueuil, in the Province of Quebec, Dominion of Canada, have invented certain new and useful Improvements in Vapor-Burners; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to the type of burner wherein oil is first vaporized and then burned upon a mantle, and it has reference more particularly to the use of oil as an illuminant on a large scale as for instance in a lighthouse where the burner has depending sub-flame tubes straddling a vertical mixing chamber and a vertical single tube vaporizer alined with the mixing chamber.

The invention may be said to consist of a burner of this type, the air supply to the mixing chamber of which is through an open ended straight horizontal duct crossing the lower end of the mixing chamber at right angles thereto between the sub flame tubes and affording facility for cleaning the perforated plug through which the oil vapor issues from the vaporizer into the mixing chamber; an air shutter being rotatably mounted in the duct and encircling the portion of the mixing chamber within the duct such portion of the mixing chamber having openings of relatively large capacity and the shutter being adapted to regulate such openings for the purpose of obtaining a proper proportion of air and vapor in the mixture. An adjustable stop limits the movement of the shutter in one direction for permitting it to be swung fully open to enable the vapor outlet to be cleaned and returned without further adjustment to the position in which it had previously been set. An important advantage of this specific construction is that the vapor outlet is always visible. For full comprehension, however, of my invention reference must be had to the accompanying drawings forming a part of this specification in which similar reference characters indicate the same parts, and wherein:

Figure 1 is a vertical sectional view of a lighthouse burner containing my invention; Fig. 2 is a similar view taken at right angles to Fig. 1; Figs. 3 and 4 are horizontal sectional views taken on lines 1—1 and 2—2 Figs. 1 and 2 respectively.

The vaporizer is indicated at *b*. It is

vertically supported in a bracket *c* and is of straight tubular form with an oil supply pipe *d* of diminutive bore connected to its lower end and a jet jewel fitting *e* fixed in its upper end and projecting slightly above the bottom of a straight horizontal duct *f* of square cross-section upwardly into which the jet jewel projects. This duct has free open ends, preferably flared, into which air is drawn directly from the surrounding atmosphere. A straight tubular mixing chamber *g* arranged in alinement with the vaporizer is extended downwardly into the duct *f* and incloses the jet jewel fitting *e*, a pair of comparatively large openings *h* in the lower portion thereof admitting air thereto. A transverse or horizontal duct *i* with closed ends is located at the upper end of the mixing chamber *g* which protrudes a short distance thereinto, and a short tubular section *k* in alinement with the mixing chamber leads into a vapor distributing chamber *m* having an inverted conical top *n* slitted as at *n'*. This inverted conical top forms the subject-matter of a separate application filed by me on March 15, 1911, under No. 614,690. A pair of sub-flame tubes *o* extend downwardly from this horizontal duct and have a series of holes *p* facing and on the same level as the vaporizer. An annular torch *r* surrounds and is carried by the vaporizer below the sub-flame tubes and has a radial trough-like duct *s* for conveying alcohol thereto.

The air supplied to the mixing chamber *c* is regulated by a cylindrical shutter *t* with openings *u* in diametrically opposite sides thereof and a radial stem or operating handle *v*. The movement of this shutter in one direction is limited by an adjustable stop consisting of a thumb-screw *w* near its upper end and threaded through a bracket *x* secured upon the side of the air duct *f*. This shutter is accommodated by an enlargement of the opening in the top of the duct through which the mixing chamber extends and it is suspended from the top of this duct by an annular shoulder formed by a sleeve *y* fixed upon the upper end of the shutter.

The advantage of my improved construction is that a clear open space from the vapor outlet in the top of the vaporizer to either side is provided, thus permitting the vapor outlet through the jet-jewel fitting to be readily cleaned without dismembering the burner; and the particular construction

of the shutter enables it to be opened sufficiently to accommodate the cleaner and insure the return of the shutter to proper predetermined position for proper regulation of the proportion of air in the combustion mixture.

What I claim is as follows:—

1. In a lighthouse burner the combination with a tubular vaporizer and a superposed mixing chamber alined therewith the mixing chamber having openings in diametrically opposite sides of the lower end thereof, a mantle supported above the mixing chamber, means whereby heat is applied to the vaporizer, and means whereby liquid hydrocarbon is supplied to the vaporizer, of an open ended horizontal air duct inclosing the contiguous ends of the vaporizer and mixing chamber and enveloping the openings in the mixing chamber and a tubular shutter having openings therein at diametrically opposite sides, such shutter rotatably inclosing the portion of the mixing chamber within the air duct and means for operating the shutter.

2. In a lighthouse burner the combination with a tubular vaporizer and a superposed mixing alined chamber therewith the mixing chamber having openings in diametrically opposite sides of the lower end thereof, a mantle supported above the mixing chamber, means whereby heat is applied to the vaporizer, and means whereby liquid hydrocarbon is supplied to the vaporizer, of an open ended horizontal air duct inclosing

contiguous ends of the vaporizer and mixing chamber and enveloping the openings in the mixing chamber and a tubular shutter having openings therein at diametrically opposite sides, such shutter rotatably inclosing the portion of the mixing chamber within the air duct, means for operating the shutter and an adjustable stop limiting the movement of the shutter in one direction.

3. In a lighthouse burner the combination with a tubular vaporizer and a superposed mixing chamber alined therewith the mixing chamber having openings in diametrically opposite sides of the lower end thereof, a mantle supported above the mixing chamber, means whereby heat is applied to the vaporizer, and means whereby liquid hydrocarbon is supplied to the vaporizer, of an open ended horizontal air duct inclosing contiguous ends of the vaporizer and mixing chamber and enveloping the openings in the mixing chamber and a tubular shutter extending downwardly into and suspended upon the top of the duct, a bracket fastened to the duct, a stem projecting from the portion of the shutter above the duct and an adjusting screw carried by the bracket in the path of the stem.

In testimony whereof I have signed my name to this specification in presence of two witnesses: Montreal March 18, 1912.

HAROLD SYDNEY THORNTON.

Witnesses:

E. R. PITTS,
GORDON G. COOKE.