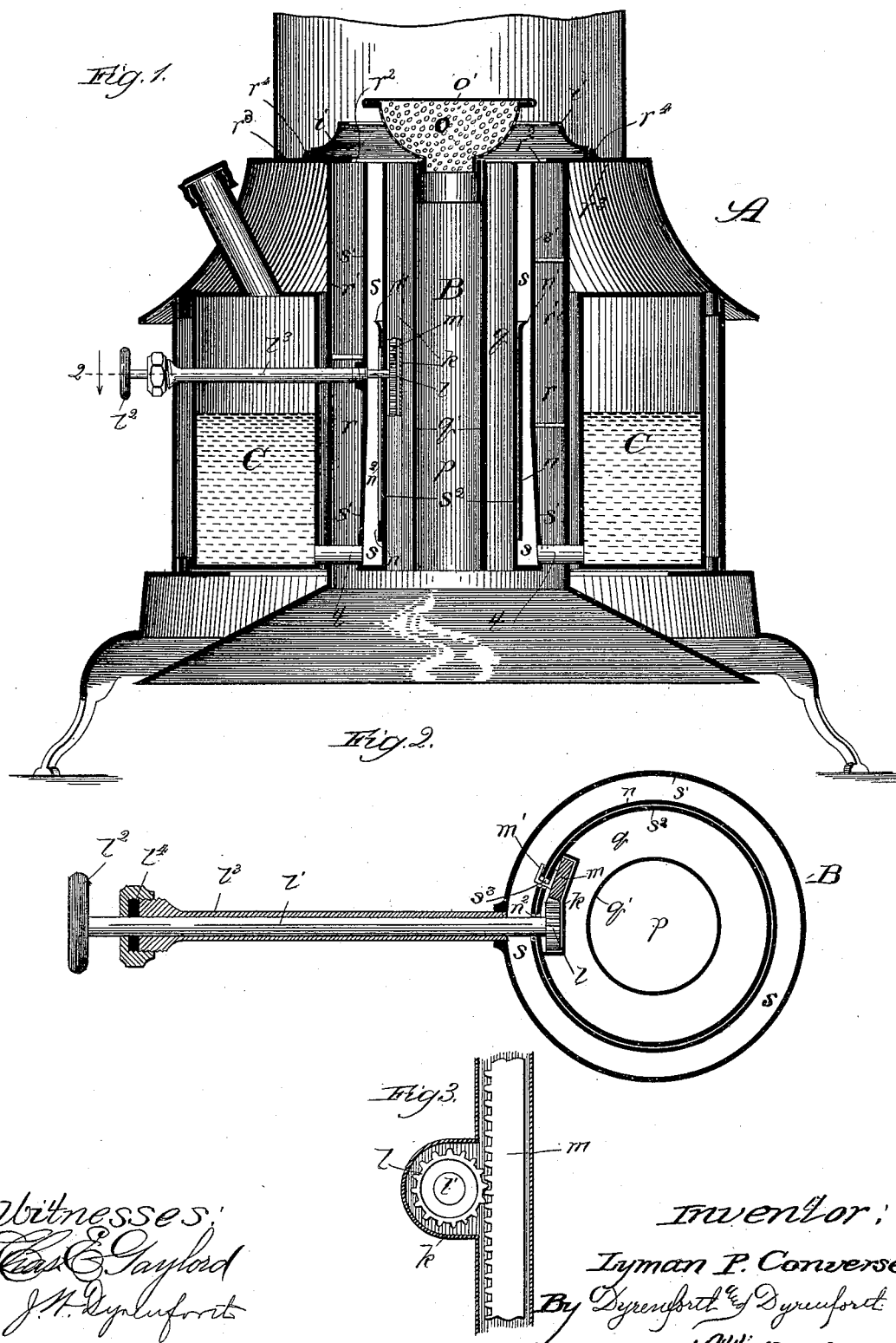


(No Model.)

L. P. CONVERSE.  
ARGAND BURNER.

No. 419,418.

Patented Jan. 14, 1890.



# UNITED STATES PATENT OFFICE.

LYMAN P. CONVERSE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO  
PETER FISH, OF SAME PLACE.

## ARGAND BURNER.

SPECIFICATION forming part of Letters Patent No. 419,418, dated January 14, 1890.

Application filed April 23, 1889. Serial No. 308,294. (No model.)

*To all whom it may concern:*

Be it known that I, LYMAN P. CONVERSE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Argand Burners, of which the following is a specification.

My invention has for its object the provision of an Argand burner of improved construction for burning hydrocarbon oil, and which will insure combustion of the oil to such a degree as to enable a chimney for the burner to be dispensed with without the consequent production of smoke or unpleasant odor; and it has for its object, more particularly, the provision of such a burner for use in stoves employing hydrocarbon oil as a fuel, and especially a stove of this description involving improvements of my own invention and forming the subject of a separate application for Letters Patent filed in the United States Patent Office April 4, 1889, and bearing Serial No. 302,972.

My invention consists in the general construction of my improved burner; and it further consists in details of construction and combinations of parts hereinafter set forth and claimed.

In the drawings, Figure 1 is a broken view in sectional elevation of my aforesaid stove, but without the steam-supply, the view showing my present improvement also in sectional elevation and in operative position; Fig. 2, an enlarged horizontal sectional view of the burner detached, the section being taken on the line 2 of Fig. 1 and viewed as indicated by the arrow; and Fig. 3, a broken and partly sectional view of details enlarged.

A represents the stove, provided with an annular oil-reservoir C, which surrounds the Argand burner B and communicates with the latter toward its lower extremity through pipes *t t*. The outer wall *s'* of the wick-tube flares outward toward its base, as shown, to enlarge the lower part of the annular wick-chamber *s*, thereby to increase the volume of oil contained therein and facilitate saturation of the wick. An annular space *r* intervenes between the wall *s'* and adjacent annular wall *r'* of the stove, the said space being open at its lower end the full width between

walls *s' r'* and materially reduced at its upper end *r<sup>2</sup>* by an annular plate *r<sup>3</sup>*, which projects part way across the space. Within the space bounded by the wick-tube *s* is a cylindrical tube *q'*, affording an air-space *p* through it and an air-space *q* around it. The tube *q'* carries at its upper end a perforated spreader *o*, surmounted by a deflecting-plate *o'*. Upon the plate *r<sup>3</sup>*, surrounding the air-inlet *r<sup>2</sup>*, is a flanged ring *i*, of the form shown, which fits within an annular projection *r<sup>4</sup>* of the plate.

The mechanism for raising and lowering the wick comprises a tube *n* within the wick-chamber, to fit over the inner wall *s<sup>2</sup>* of the latter, having a flaring serrated upper edge *n'* to engage the wick, and a rack *m* on the opposite side of the wall *s<sup>2</sup>* in the space *q*, and connected with the tube *n* by a strip *m'*, which extends through a longitudinal slot *s<sup>3</sup>* in the walls *s<sup>2</sup>*. The rack *m* is engaged by a pinion *l* on the end of a shaft *l'*, which extends through the oil-reservoir C and beyond the stove, where it carries a hand-wheel *l<sup>2</sup>*. The shaft may be housed in a tube *l<sup>3</sup>*, provided at its end with a stuffing-box *l<sup>4</sup>*, whereby egress of oil from the wick is prevented. The tube *n* is provided with a longitudinal slot *n<sup>2</sup>*, which fits over the shaft *l'* and extends from the lower extremity of the tube nearly to its serrated end *n'*. The rack *m* and pinion *l* are housed in a casing *k*, extending from near the lower end of the burner, where it is closed, to the top of the wick-chamber, at which end it is open. When the wick is ignited, air is fed to the flame through the spaces *p* and *q* on the inside and the space *r* on the outside thereof, the effect of the air-currents thus distributed through the spaces being to afford a highly-effective feed of the oxygen of the air, while the supply through the central tube *p* in addition strikes the flame at some height from the wick, and thus tends to produce complete combustion of the carbon carried by the flame. The flanged ring *i* operates to direct the air entering at *r<sup>2</sup>* into the flame and prevent any escaping without coming into contact with the latter.

I have found that by providing the rack *m* on the inner side of the wick-tube there is no apparent interference thereby with the combustion of the flame, while where the rack is

located on the outside of the wick-tube, as is common in other Argand burners employing racks, and of which I am aware, it is found to interfere with the air-supply in a manner  
5 to retard combustion and produce smoking. In the use of my improved burner, furthermore, the perforated spreader does not become clogged by products of combustion, as in Argand burners unprovided with the air-  
10 passage  $q$ , which clogging effect materially interferes with the combustion and necessitates frequent cleaning of the spreader.

What I claim as new, and desire to secure by Letters Patent, is—

15 1. In an Argand burner, the combination, with the annular wick-chamber  $s$ , of the air-inlet  $r^2$  and ring  $i$  about the wick-tube, air-passage  $p$ , surmounted by the spreader  $o$ , and  
20 air-passage  $q$  within the space bounded by the wall  $s^2$  of the wick-chamber, the wick-engaging tube  $n$  within the wick-chamber,

rack  $m$  in the space  $q$ , connected with the tube  $n$  by a strip  $m'$ , extending through a slot  $s^3$  in the wall  $s^2$ , and pinion  $l$  on the shaft  $l'$ ,  
engaging with the rack, substantially as de- 25 scribed.

2. In an Argand burner, the combination, with the annular wick-chamber  $s$ , of the air-inlet  $r^2$  and ring  $i$  about the wick-tube, air-passage  $p$ , surmounted by the spreader  $o$ , and 30 air-passage  $q$  within the space bounded by the wall  $s^2$  of the wick-chamber, the wick-engaging tube  $n$  within the wick-chamber, rack  $m$  in the space  $q$ , connected with the tube  $n$  by a strip  $m'$ , extending through a slot  $s^3$  in 35 the wall  $s^2$ , pinion  $l$  on the shaft  $l'$ , meshing with the rack, and housing  $k$  for the rack and pinion, substantially as described.

LYMAN P. CONVERSE.

In presence of—

J. W. DYRENFORTH,  
M. J. BOWERS.