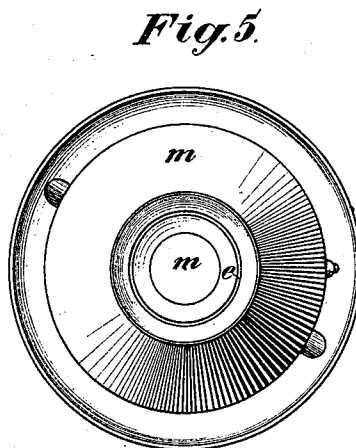
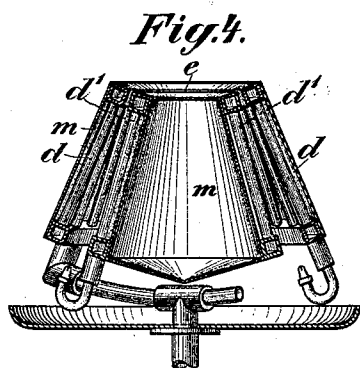
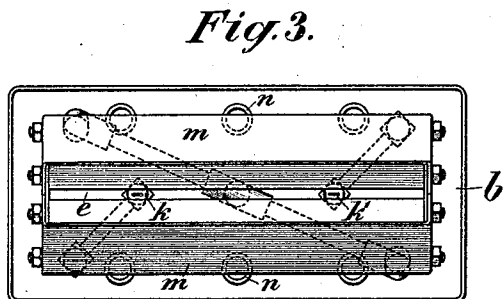
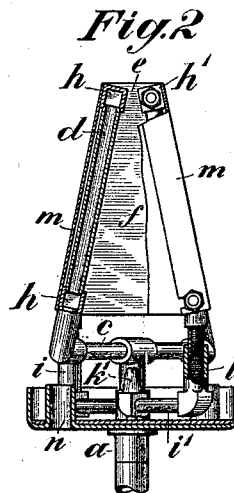
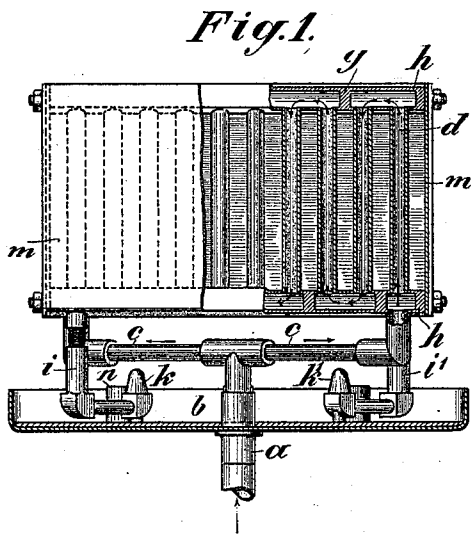


(No Model.)

L. BAUMGARTNER.
PETROLEUM BURNER

No. 539,375.

Patented May 14, 1895.



Witnesses:
K. R. Brennan
Otto Riess

Inventor:
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by Gospel Raeymer
ATTORNEYS.

UNITED STATES PATENT OFFICE.

LOUIS BAUMGARTNER, OF ST. GALL, SWITZERLAND, ASSIGNOR TO JOHN
LEEMANN-ABDERHALDEN, OF SAME PLACE.

PETROLEUM-BURNER.

SPECIFICATION forming part of Letters Patent No. 539,375, dated May 14, 1895.

Application filed February 21, 1894. Serial No. 500,993. (No model.)

To all whom it may concern:

Be it known that I, LOUIS BAUMGARTNER, a citizen of the Republic of Switzerland, residing at St. Gall, Switzerland, have invented certain new and useful Improvements in Petroleum-Burners, of which the following is a specification.

The object of my invention is to provide a new and improved petroleum burner in which the fuel consumed produces a ribbon-shaped forced flame either straight or curved, as may be desired. The pipes or channels for conducting the petroleum from the supply-pipes or channels to the burners are arranged in zigzag or serpentine shape, which zigzag or serpentine pipes are inclined toward each other to form an opening between their tops, the space between the two sets of pipes gradually increasing toward the bottom. The flame issues in the shape of a ribbon or band through said opening as a forced flame and during its passage through the space between the two sets of pipes or channels heats the pipes or channels containing the petroleum, so that the same is vaporized by the time it reaches the burners.

In the accompanying drawings, Figure 1 is a side view of my improved petroleum-burner, parts being broken out and others shown in vertical longitudinal section. Fig. 2 is an end view of the same, parts being broken out and others shown in vertical transverse section. Fig. 3 is a plan view of the same. Fig. 4 is a vertical transverse sectional view of an annular burner of my improved construction. Fig. 5 is a plan view of the same.

Similar letters of reference indicate corresponding parts.

The petroleum supply pipe *a* passes vertically through the bottom of the pan *b* and a short distance above said pan is connected with the horizontal pipe *c*, which is arranged diagonally in said pan. The opposite ends of said horizontal pipes *c* are connected with two groups of pipes *d, d'*, which are arranged in two planes inclined toward each other, so that a passage *f* is formed between said two groups of pipes *d, d'*, which passage is gradually decreased in width from the bottom to the top and terminates at the top in the opening

e formed between the upper edges of the two groups of pipes *d, d'*. Each group of pipes *d, d'* is formed of a single pipe bent in zigzag or serpentine shape or is preferably formed of chambers *h, h'*, divided by transverse partitions *g* into compartments, which compartments are connected with each other in the manner shown by the pipes *d, d'*, whereby an approximately serpentine or zigzag channel is formed for the petroleum. The construction with the chambers *h, h'*, and the pipes connecting them is simpler than that in which the channel is formed by bending a pipe in serpentine or zigzag shape. To the end of the channel of each group a piece of tubing *i, i'* is attached, which extends downward and horizontally over the bottom of the pan and at its free end and in the vertically central plane of the passage *f* is provided with a burner-tip *k, k'* projecting upward. The petroleum under pressure passes through the tube *a* and is distributed in the two groups of pipes *d, d'*, before it is consumed at the burner-tip *k, k'*. The two flames issuing under pressure from the burner-tips, pass upwardly through the passage *f* between the two groups of pipes and unite to form a ribbon-shaped forced flame, which issues from the opening *e*. In passing through the passage *f*, the two flames come in contact with the entire inner surface of each group of pipes, whereby said pipes are heated to a high degree and the petroleum passing through the same is vaporized and issues in the form of a vapor-jet from the burner-tips. The screens *l* in the pipe-sections *i, i'*, thoroughly mix the vapors and retain impurities. The outer sides of the two groups of pipes are covered with sheet-metal casing *m*, which prevents the flames passing out in any other direction except through the opening *e*.

If the pipes were arranged closely together it is evident that the casing *m* would not be necessary, but when spaces are left between the pipes, a casing must be made around the group of pipes in order to retain the heat.

To start the burner, the two groups of pipes and the petroleum therein must first be heated and this is accomplished by pouring a combustible fluid into the pan *b* and igniting the same. Openings *n* are provided in the bot-

tom of the pan to permit currents of air required for combustion to pass through them to the flames. Necks project upwardly from the edges of said openings to prevent the combustible fluid flowing off through said openings.

In place of arranging the two groups of pipes in two planes inclined toward each other, they may be shaped to form two concentric cones as shown in Figs. 4 and 5. Thereby an annular opening is formed through which the annular flame can issue.

In place of arranging the pipes in the form of a cone, they can be arranged to form cylindrical or pyramid-shaped bodies or bodies of an oblong shape.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A petroleum burner having a burner-tip and a pipe for conducting the petroleum to said tip, said pipe forming an upwardly-extending and inwardly-inclined serpentine channel for the petroleum, and the said pipe being located above the burner-tip, whereby the petroleum passing through the channel formed is vaporized, substantially as set forth.

2. A petroleum burner constructed with two burner-tips and two groups of pipes forming serpentine channels for the petroleum passing to the burner-tips, which two groups of pipes are arranged in two inclined planes to form between their top edges an opening from which the inner part of the flame issues, the tips being located below the groups of pipes to

vaporize the petroleum passing through them, substantially as set forth.

3. In a petroleum burner, the combination with two groups of serpentine pipes or channels arranged at an inclination in different planes, a burner-tip connected with one end of each group of pipes and a supply-pipe connected with the other ends, said burner-tips being arranged at opposite ends of the burner so that the oil travels in opposite directions in the two groups of pipes, the middle line of the groups of pipes being located above the burner-tips and the upper edges of the groups forming an opening through which the inner part of the flame issues, substantially as set forth.

4. In a petroleum burner, the combination, with two groups of pipes arranged at an inclination in different planes and between the upper edges of which an opening is formed each group being composed of a top and bottom chamber divided by partitions into compartments and united by pipes, a burner-tip at one end of each group below the pipes, a petroleum supply-pipe connected with the opposite end of each group and a casing or mantle around the group of pipes, substantially as set forth.

In testimony whereof I hereunto sign my name, in the presence of two subscribing witnesses, this 2d day of February, 1894.

LOUIS BAUMGARTNER.

Witnesses:

E. BLUM,

H. A. ALEHART.