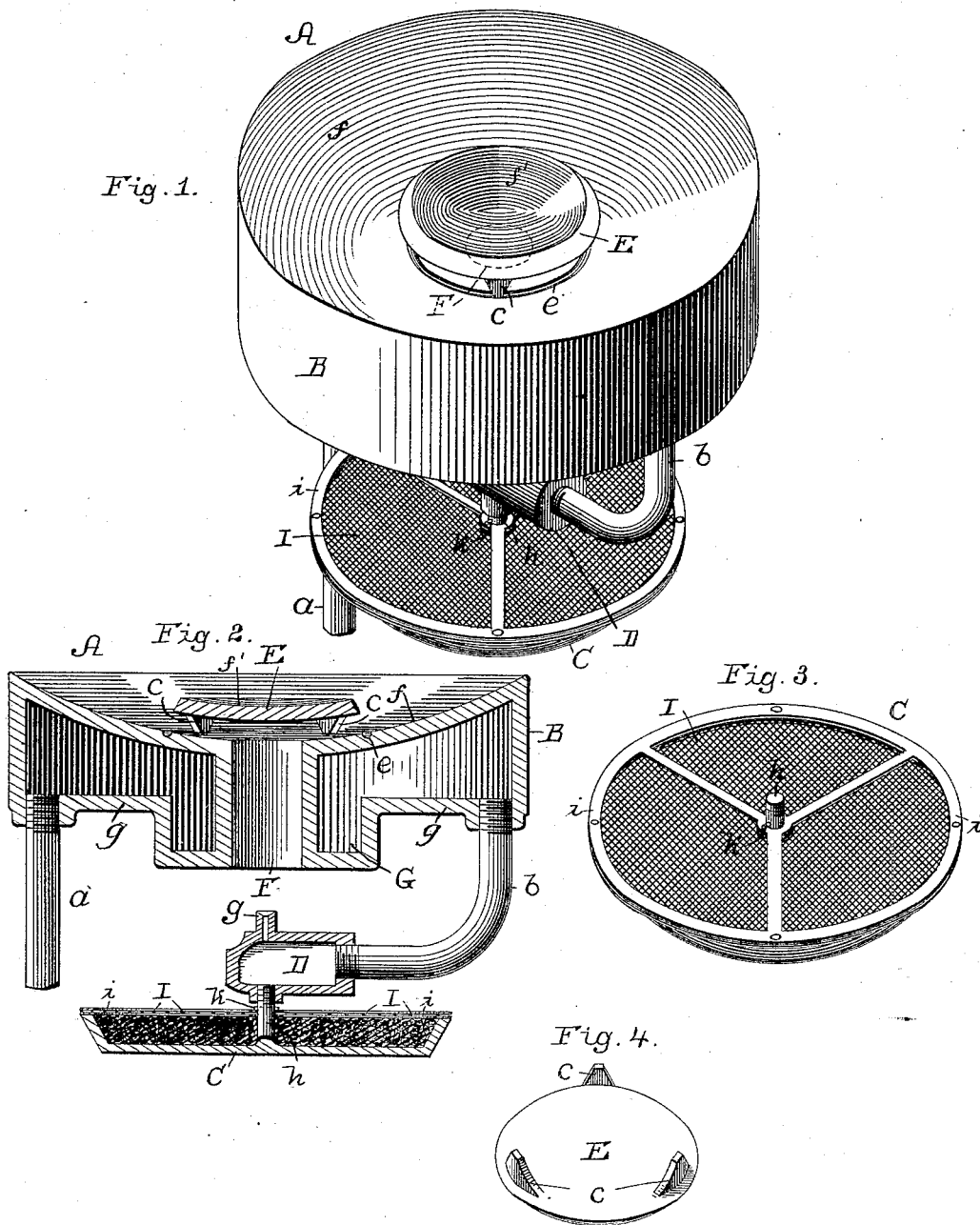


(No Model.)

F. H. SMITH.
PETROLEUM BURNER.

No. 418,243.

Patented Dec. 31, 1889.



Witnesses

F. J. Fischer

A. A. Higdon

Inventor
Frederick H. Smith

By his

Attorney

J. A. Higdon

UNITED STATES PATENT OFFICE.

FREDRICK H. SMITH, OF KANSAS CITY, MISSOURI.

PETROLEUM-BURNER.

SPECIFICATION forming part of Letters Patent No. 418,243, dated December 31, 1889.

Application filed March 13, 1889. Serial No. 303,124. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK H. SMITH, of Kansas City, Jackson county, Missouri, have invented certain new and useful improvements in Petroleum-Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to certain improvements in burners, more especially petroleum-burners, having for its object to promote combustion, and therefore intensify the heat of the flame, thus augmenting the heating capacity of the burner; and to these ends the nature of the invention consists of the detailed construction and combination of parts, as will more fully appear from the following description and accompanying illustrations, in which—

Figure 1 is a perspective view of my improved burner. Fig. 2 is a sectional elevation of the same. Fig. 3 is a detached perspective view of the initial burner, and Fig. 4 is a similar inverted view of the flame-spreader.

In the embodiment of my invention I employ a retort A B, in its general outline circular and connected with a suitable tank or reservoir (not shown) containing the petroleum by means of a pipe *a*. The retort A B is cast with a central passage or tube F extending vertically through it, while its bottom is cast with a downward central extension forming around said tube or passage an annular chamber G. The retort A B has a concaved or dished top or upper surface *f*, and setting or resting in its concavity, directly over or in alignment with the central passage or tube F, is a correspondingly-shaped plate or spreader E. This construction conforms more nearly to the form the flame takes as it leaves the flame-tube F, the concave surface *f* of the retort acting as a reflector to concentrate the heat and reflect it upward in a hollow or cylindrical body around the spreader or deflector. The spreader E is cast with a number of equidistant downward-extending projections or legs *c c*, which are tapered to points which rest in an annular groove *ee* in the upper surface or top of the retort A B around the upper end of the flame-tube, thereby holding the spreader in position.

C is the initial burner, consisting of a pan supplied with a suitable absorbent—as, for instance, mineral wool. In the center of the bottom of the pan or burner C is a vertical stud *h*, having a screw-threaded upper end. Upon the pan or burner C rests a circular diaphragm of wire-cloth I, the same being incased in a circular frame or spider *i*, the radial arms or bars of which unite with a central-apertured hub-like portion, which fits upon the stud *h* of the pan or burner C. This diaphragm confines and holds the absorbent in a compact condition in the initial burner, and also retains the heat in the latter sufficiently to cause the combustion to be more complete than if the absorbent were exposed to drafts. Said diaphragm also serves to spread the liquid fuel as it flows into the initial burner, thereby distributing it evenly through the absorbent.

D is the burner proper, screwed upon the stud *h*, and having a flame or jet tube *g* arranged immediately below and in alignment with the tube or passage F of the retort A B. The burner D is connected with the retort A B by means of a pipe *b*, through which it is supplied with oil or petroleum. It will be observed that the retort being supplied with oil or petroleum, it (the latter) will enter the annular chamber G, filling that, and will pass into and flow through the pipe *b*, entering and filling it. The oil or petroleum overflowing the burner D will pass into the pan C, saturating the absorbent or mineral wool therein. The oil or petroleum in the pan C is now ignited, the flame ascending and heating the burner D and its contained oil or petroleum, converting the latter into vapor or gas after having been a certain length of time subjected to the heat of the initial burner C. The gas or vapor of the burner D is now ignited at the jet-tube *g*, the flame from which ascends the tube or passage F, issuing from under and around the spreader. The fuel which flows over the flat portion *g* is necessarily spread out and is very shallow, thereby facilitating its conversion into vapor, and the peculiar arrangement of the annular chamber G presents a large heating-surface, which is exposed to the flame and heat of the burner. Of course it will be understood that the burner in use is placed in

the fire-pot or combustion-chamber of a stove or other medium, thus taking the place of the fuel otherwise employed as the heating agent.

In order to clean the burner D, it is only
5 necessary to detach it from the stud *h*, when the sediment will flow out or can be readily cleaned out.

I am aware that it is old to provide a downwardly-convex deflector or spreader arranged over the flame-tube, and therefore I
10 do not desire to claim this broadly; but I am not aware that burners have heretofore been constructed in the peculiar shape herein shown and described—namely, with a concaved upper surface, within which and over its central flame-tube is arranged a spreader or deflector having the said convex shape. The
15 deflector, as will be observed, is entirely received in the concavity of the retort and is below the upper edge thereof, so as not to interfere with articles which may be placed on the retort. The peculiar construction of the
20 initial burner, with its gauze or wire-cloth diaphragm, and the novel manner of con-

necting the burner D to said initial burner, 25 whereby it is arranged over the center of the latter and may be removed to enable it to be cleaned, will also be noted.

Having thus described my invention, what I claim as new, and desire to secure by Letters 30 Patent, is—

In a petroleum-burner, the combination of the retort provided with a concaved upper surface and a central flame-tube, the downwardly-convex deflector or spreader arranged over the flame-tube within the said
35 concavity of the retort and below the plane of the upper edge of the latter, and the burner arranged concentric with and below the lower end of the flame-tube, substantially 40 as specified.

In testimony whereof I affix my signature in presence of two witnesses.

FREDRICK H. SMITH.

Witnesses:

F. G. FISCHER,
A. A. HIGDON.