(No Model.)

W. R. PARKS.

OIL BURNER.

No. 402,853. Patented May 7, 1889.

Fig. 1.

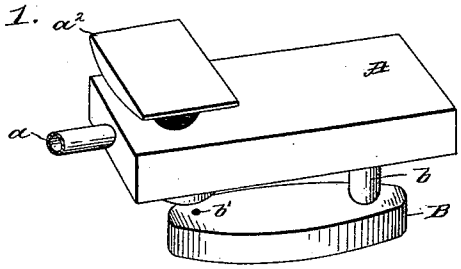


Fig. 2

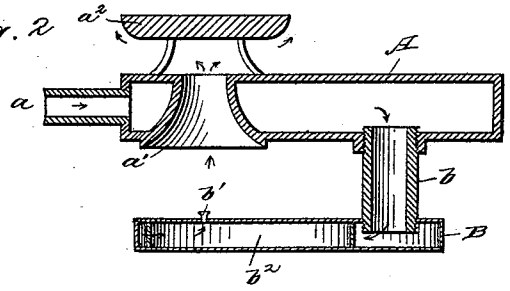
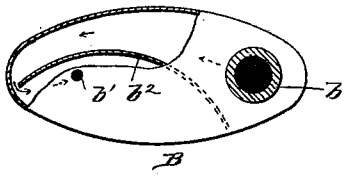


Fig. 3.



Witnesses.
E. D. Smith
H. C. Cushman

Inventor
Wm. R. Parks
Mann & Chapman, Attys.
by Henry Calvert
Asso. Atty.

UNITED STATES PATENT OFFICE.

WILLIAM R. PARKS, OF PALMER, MASSACHUSETTS.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 402,853, dated May 7, 1889.

Application filed December 7, 1888. Serial No. 292,948. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. PARKS, of Palmer, in the county of Hampden and Commonwealth of Massachusetts, have invented a new and useful Improvement in Oil-Burners, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention relates to oil-burners for use in connection with stoves and furnaces in which the oil passes through a heated retort in which it is vaporized into a receiver containing the burner proper or ignition-vent.

The object of my invention is to improve the construction of such oil-burners in such manner as to insure the proper combustion of all of the vapor or gas generated, and thereby prevent the waste of oil.

So far as I am aware oil-burners for use in stoves or furnaces have heretofore comprised a plurality of vents or burners proper with a single retort and receiver, and the result has been that it has been found to be impracticable to regulate the flow of oil in such a way as to cause a perfect combustion at each of said vents, and where two vents are used, for example, while one will have a reasonably perfect combustion, the other will permit a large amount of the gas to pass off in the form of smoke, thus not only rendering the use of the burner disagreeable, but causing a considerable waste of oil. Again, in such burners as heretofore constructed the vapor or gas passes directly from the retort to the vents in the receiver without affording sufficient opportunity for the decomposed vapor or gas to separate itself from that which is only partially decomposed, thereby again causing a waste of oil, besides impairing the heating capacity of the burner. I have found that these objections to existing burners can be overcome by utilizing a separate retort and receiver for each vent and by so constructing the receiver that the vapor or gas in passing from the retort to the vent will be compelled to pass through a considerable space within the receiver; and my invention therefore consists in the oil-burner embodying these features, hereinafter fully described, and particularly pointed out in the claims.

Referring to the drawings, in which like letters designate like parts in the several figures, Figure 1 is a perspective view of an oil-burner embodying my invention. Fig. 2 is a central longitudinal section thereof. Fig. 3 is a plan view of the receiver, having a portion of its upper side broken away to show the interior thereof.

The letter A designates the retort, having the feed-pipe *a* entering it at one end, and having the combustion-flue *a'* passing transversely therethrough near said end. A flame-deflector, a^2, is supported upon the retort and above said flue *a'* by means of suitable standards, as shown. Near the opposite end of the retort a pipe, *b*, leads downwardly to the receiver B, which is preferably oval in form, as shown. The receiver is provided in its upper side with vent *b'*, located centrally beneath the flue *a'*, or may be provided in lieu of said vent with a burner similar to an ordinary gas-burner, in which case the flue *a'*, instead of being circular in cross-section, as shown, will preferably be made oblong. Located within the receiver B is a diaphragm, b^2, extending from top to bottom thereof and from the side wall at a point near the mouth of pipe *b*, between the mouth of said pipe and vent *b'*, to a point just short of the end wall of the receiver upon the opposite side of said vent, thus leaving a narrow space between the end of said diaphragm and the wall of the receiver, as shown.

The oil passes from feed-pipe *a* through the retort to pipe *b*, thence through said pipe into receiver B, and within said receiver around the end of diaphragm b^2 to vent *b'*, where it is ignited. Upon being ignited the flame heats the lower portion of the retort and vaporizes the oil therein, and by the expansive force of the vapor the flame from the vent is forced upwardly through the flue *a'*, and by heating the latter to a red heat decomposes the vapor into gas in the usual manner.

The vapor is compelled by the diaphragm in the receiver to traverse a considerable distance within the latter in passing from the retort to the vent, and the more highly heated portion of the vapor is thereby permitted to rise to the top of the receiver, while the less highly heated portion thereof, remaining at the bottom of the receiver, receives the direct heating action of the vapor constantly passing

through pipe *b* from the retort. A perfect combustion is thus insured, as well as a considerable saving in the quantity of oil consumed within a given period of time.

By using a single vent or burner with each retort and receiver, moreover, I am enabled to perfectly control the flow of vapor to the burner, and thereby prevent the waste of oil incident to a smoking burner. Whenever more than one burner is required, each will be provided with its individual retort and receiver, as herein described and shown.

It will be observed that, as the feed-pipe enters the retort at one end of the latter and the vapor-conducting pipe *b* is located at or near the opposite end thereof, the oil is compelled to pass over a very considerable area of heated surface, whereby vaporization is rapidly secured and the heating capacity of the burner greatly enhanced.

The burner herein described is adapted for use in connection with stoves and furnaces generally; but I have devised it with especial reference to use in furnaces of low-pressure steam-boilers, wherein it forms an economical and convenient generator of heat.

I do not wish to limit myself to the exact form or relative proportions of the several parts of the burner herein shown and described, as modifications therein can be made without departing from the spirit of my invention.

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

1. The oil-burner herein described, consisting of retort A, having flue *a'* passing therethrough and feed-pipe *a* entering the same at one end thereof, receiver B, having vent *b'*, and provided with the diaphragm b^2, arranged therein, substantially as described, and pipe *b*, connecting said receiver with said retort, combined and operating substantially as set forth.

2. In an oil-burner of the kind herein described, the combination, with the retort having a combustion-flue passing therethrough, of a receiver located beneath said retort and connected therewith by a pipe, said receiver having a vent located beneath said combustion-flue, and having an interior diaphragm located between said vent and the mouth of the connecting-pipe, said diaphragm being so arranged that the oil or vapor in its passage from said pipe to said vent will be compelled to traverse the greater portion of the length of said receiver, substantially as and for the purpose described.

WILLIAM R. PARKS.

Witnesses:
W. H. CHAPMAN,
J. E. CHAPMAN.