

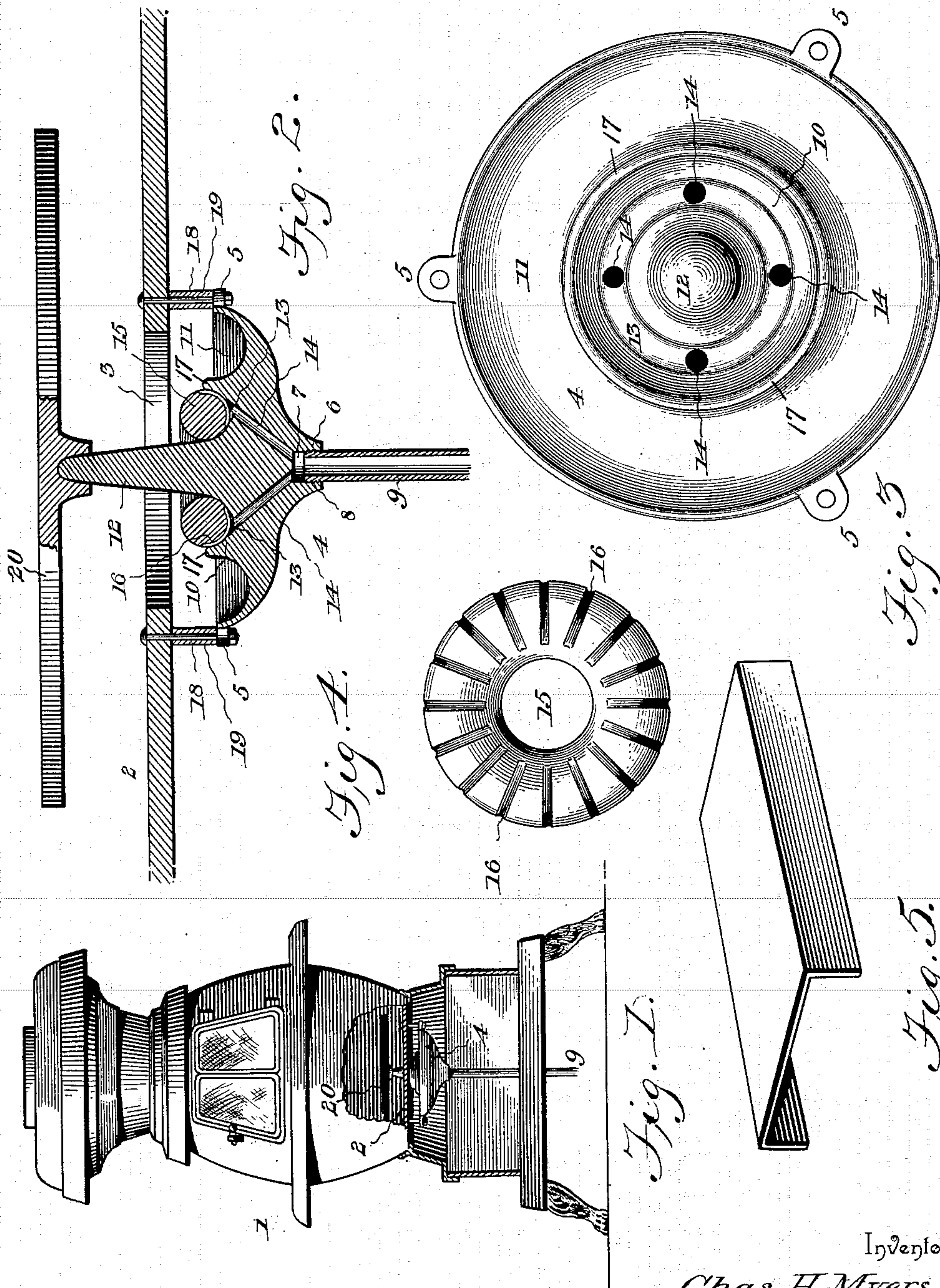
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Patented Oct. 11, 1898.

C. H. MYERS.
CRUDE OIL BURNER.

(Application filed Aug. 18, 1897.)

(No Model.)



Witnesses

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By *his* Attorneys,

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UNITED STATES PATENT OFFICE.

CHARLES HENRY MYERS, OF BUFFALO, NEW YORK, ASSIGNOR TO HIMSELF
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CRUDE-OIL BURNER.

SPECIFICATION forming part of Letters Patent No. 612,118, dated October 11, 1898.

Application filed August 18, 1897. Serial No. 648,718. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HENRY MYERS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Crude-Oil Burner, of which the following is a specification.

This invention relates to hydrocarbon-burners, by which either crude or refined petroleum may be converted into vapor and consumed; and the object of the invention is to provide a burner of this character of simple construction by which the oil will be converted into vapor directly at the point of ignition and without passing through a heating-chamber, whereby the burner will be rendered more efficient in operation, will not be liable to become choked or to otherwise get out of order, and which may be easily kept clean.

The invention will be fully described hereinafter and the novel features thereof clearly defined in the claims.

In the drawings, Figure 1 is a front elevation of a heating-stove, partly broken away to show my improved burner in position. Fig. 2 is a vertical section through the base-plate, the burner, and the spreader. Fig. 3 is a plan view of the burner. Fig. 4 is a bottom plan view of the generating-ring. Fig. 5 is a perspective view of a spreader designed for use in cook-stoves.

Similar reference-numerals indicate similar parts in the several figures.

1 indicates a heating-stove, which may be of any ordinary or approved construction; 2, the base-plate, provided with a central opening 3, below which the burner 4 is supported, as will be hereinafter described. As shown in the drawings, the burner is circular in plan view and provided at its edge with a series of perforated ears or lugs 5, the purpose of which will be referred to hereinafter.

The lower surface of the body of the burner is convex, and at the center thereof a boss 6 is provided which is bored vertically to form a chamber 7, the outer end of which will be preferably threaded interiorly, as indicated by 8, in order to receive the threaded end of the oil-supply pipe 9, which will lead from an elevated reservoir. (Not shown.) It is

obvious that the supply-pipe can be attached to the burner in any other suitable manner, if preferred.

On the upper face of the body of the burner two concentric troughs are formed, the inner trough being indicated by 10 and the outer trough by 11. The outer trough 11 is semicircular in cross-section and is intended to receive the oil, which must be initially burned in order to heat the generating-ring sufficiently to convert the oil into vapor, and also to receive any oil that may pass out from below the generating-ring without being vaporized and also all extraneous and non-convertible matter which may be carried to the burner by the oil.

12 indicates a post extending vertically from the central portion of the burner and forms one of the boundary-walls of the trough 10. This trough is also substantially semicircular in cross-section, but will preferably be provided with a shallow annular recess 13 in its bottom, the purpose of which will be referred to hereinafter. A series of passages 14 radiate from the inner end of the chamber 7 and open out into the bottom of the trough 10, and these passages convey the oil from the chamber 7 and distribute it uniformly in the trough 10 at equidistant points. In practice I have found that four of these passages are sufficient, but such number may be increased or diminished without departing from the spirit of my invention.

15 indicates the generating-ring, which when it becomes heated converts the oil which is delivered into the trough 10 into vapor. This ring fits over the post 12, is supported in the trough 10, and provided with a series of grooves 16 in the lower outside portion of its periphery, which grooves form passages for the vapor that is generated by the heated ring. The grooves terminate at their upper ends at the upper edge of the annular flange 17, which divides the troughs 10 and 11, and the vapor is ignited at this point.

In using oil for fuel in heating or cooking stoves it is necessary that the ordinary grate be removed and the imperforate base-plate substituted—that is, the plate is imperforate with the exception of the circular opening 3 immediately above the burner. The burner

is secured to the plate below it by means of bolts 18, which pass through openings in the plate adjacent to the edge of the opening 3 and through the perforated ears 5 on the burner, and the burner is spaced apart from the plate by the sleeves 19, which fit over the bolts and engage the lower face of the plate and the upper faces of the ears 5. When secured in proper position, the post 12 will partly project through the opening in the plate 2, but the flame will issue from the burner below the plate, and the air necessary for combustion will pass from all sides of the burner between the plate and the upper face of the burner and be thoroughly mixed with the vapor as it issues from the burner, and thereby insure perfect combustion.

20 indicates the spreader, which may be detachably supported on the top of the post in any suitable manner.

In Fig. 5 I have illustrated a spreader which is designed for use in cook-stoves and, as shown, is in the form of an open-ended rectangular trough. This trough will be inverted and removably supported on the top of the post 12 and will deflect the flame in each direction and cause it to issue from its open ends and below the griddles of the stove. By using a deflector of this construction a single burner only will be inserted in the cook-stove.

In operation the oil will flow from the reservoir through the pipe 9 into the chamber 7 and be distributed through the radiating passages 14 into the trough 10, from which it will overflow into the trough 11. Asbestos or some other suitable absorbent material will be placed in the trough 11 to form a wick in order that the oil in the trough 11 may be ignited, and the burning oil will gradually heat the generating-ring 15 and also the burner in immediate contact with it, and as soon as the burner and the ring are sufficiently heated the oil which flows into the trough 10 will be converted into vapor, which will issue out through the grooves 16 and be ignited at the edge of the annular flange 17. In practice I have found it is preferable to form the shallow recess 13 in the bottom of the trough 10 in order that the oil can be more quickly distributed in a thin film entirely around the bottom of the trough and be brought into contact with the generating-ring 15 throughout its entire circumference. While, however, this shallow recess is preferable, it is not absolutely necessary, as in practice I have attained good results when the recess has been absent, although at times the flame has not been entirely uniform around the burner, and for this reason it is preferable to form the recess in the bottom of the trough 10.

It will be seen that the oil-passages are entirely below the flame, and consequently the oil in its passage to the burner does not become heated to any appreciable extent until it is brought into actual contact with the

generating-ring. One of the principal advantages, therefore, of my burner is that the oil is delivered from the reservoir to the generating-ring practically cold, and as soon as it is brought into contact with the generating-ring in a thin film it is immediately converted into vapor and consumed.

In some burners of which I am aware the oil is conveyed to a chamber more or less remote from the point at which the vapor ignites and becomes gradually heated in its passage through the chamber until it reaches the point where it is converted into vapor. This gradual heating of the oil in a measure refines it and the residuum of the oil will accumulate on the walls of the heated chamber to such an extent as to eventually and in a very short time choke the chamber, and thereby render the burner inoperative until the chamber is cleaned out. Very frequently it is impossible to get at the interior of the chamber to cleanse it, and in such cases an entirely new chamber, or the part of the burner containing the chamber, has to be provided. In my burner the oil is converted into vapor directly at the point of ignition, and as the vapor rushes out through the grooves in the generating-ring any non-convertible matter contained in the oil will be carried with it and fall into the outer trough, from which it can easily be removed. In testing my burner with crude oil which contained a quantity of sand the sand was carried with the oil into the burner beneath the generating-ring and blown out by the vapor and deposited in the outer trough.

From the foregoing description it will be seen that I have produced an exceedingly simple and inexpensive burner which is not liable to become choked or to otherwise get out of order and which can be easily cleaned.

It will be understood that changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what I claim is—

1. In a hydrocarbon-burner, a burner-body having an oil-supply connection at its lower side and formed in its upper face with an annular trough, an oil inlet or inlets leading from the oil-supply connection to said trough, and a horizontally-arranged generating-ring lying in said trough and resting directly on the body over the oil inlet or inlets, substantially as set forth.

2. In a hydrocarbon-burner, the combination with the main body portion having an annular trough in its upper face, an oil-receiving opening in its lower face, and a series of radiating passages connecting said trough and opening, and a generating-ring supported in said trough and provided with a series of vapor-delivering grooves in its periphery, substantially as described.

3. In a hydrocarbon-burner, the combina-

tion with the main body portion having an annular trough in its upper face, an oil-receiving opening in its lower face, and a series of radiating passages connecting said trough and openings, said trough having a shallow annular recess in its bottom, and a generating-ring supported in said trough and provided with a series of vapor-delivering grooves in its periphery, substantially as described.

10 4. In a hydrocarbon-burner, the combination with the main body portion having on its upper face a central vertical post, and an annular trough surrounding said post, an oil-receiving opening in its lower face, a series of
15 passages connecting said trough and opening, and a generating-ring fitted over said post and supported in said trough, substantially as and for the purpose specified.

20 5. In a hydrocarbon-burner, the combination with the main body portion having on its upper face a central vertical post and two concentric annular troughs surrounding said post, of a generating-ring fitted over the post and supported in the inner trough, and means
25 to convey oil to the inner trough below said ring, substantially as and for the purpose specified.

6. In a hydrocarbon-burner, the combination with the main body portion having on its

upper face a central vertical post and an annular trough surrounding said post, of a generating-ring fitted over the post and supported on said trough, said ring having a series of vapor-delivering grooves in its periphery, a spreader supported on the said post, and
35 means to convey oil to said trough below the generating-ring, substantially as described.

7. In a hydrocarbon-burner, the combination with the main body portion having an annular trough in its upper face, an oil-receiving opening in its lower face, and a series of radiating passages connecting said trough and opening, of a supporting-plate from which the main body portion is suspended, said plate having an opening immediately
45 above the burner, and a generating-ring supported in said trough below the said plate and provided with a series of vapor-delivering grooves in its periphery, substantially as described.
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In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES HENRY MYERS.

Witnesses:

JOHN H. SIGGERS,
THEODORE DALTON.