

(No Model.)

H. C. HORNISH.
OIL BURNER.

No. 579,435.

Patented Mar. 23, 1897.

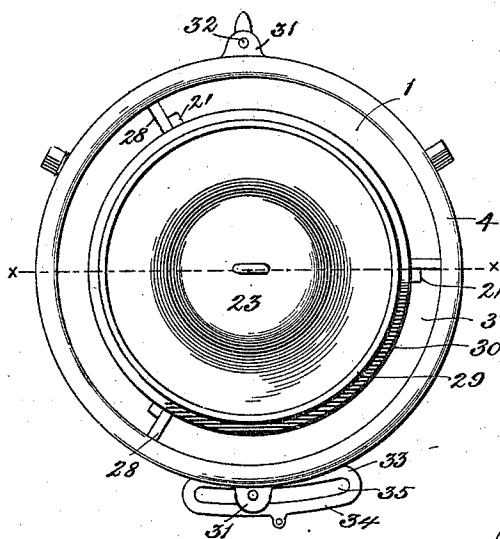


Fig. 1.

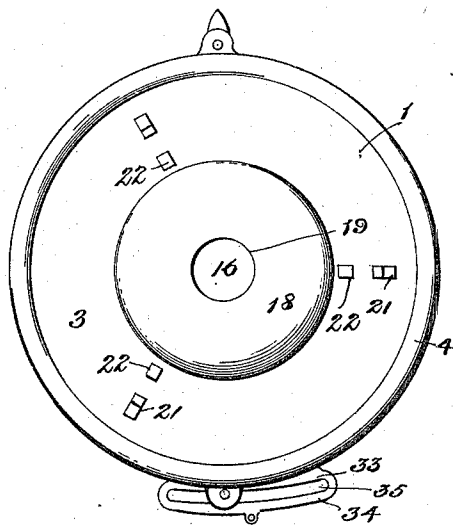


Fig. 2.

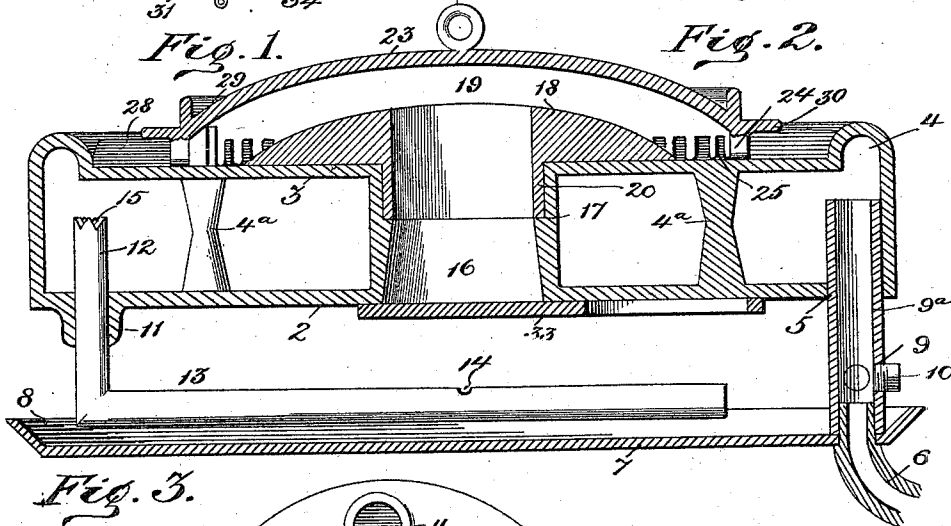


Fig. 3.

Fig. 4

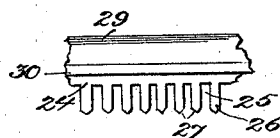
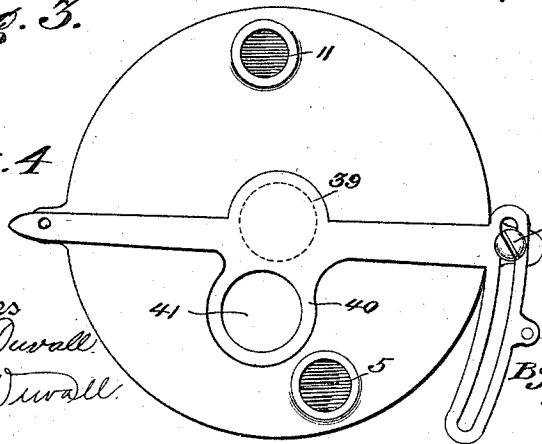


Fig. 5.

Witnesses
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UNITED STATES PATENT OFFICE.

HARRY C. HORNISH, OF PEORIA, ILLINOIS.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 579,435, dated March 23, 1897.

Application filed June 9, 1896. Serial No. 594,845. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. HORNISH, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Oil-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in oil-burners, the objects in view being to produce a simple and cheaply-constructed burner that is adapted for artificial or natural gas or for burning oil and which by its peculiar construction will accomplish the same in safety and produce a most efficient and intense heat, thoroughly distributing the same and discharging it at proper points over the burner.

Various other objects and advantages of my invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a plan view of a burner embodying my invention. Fig. 2 is a similar view, the burner-cap being removed. Fig. 3 is a vertical sectional view on the line *xx* of Fig. 1. Fig. 4 is a bottom plan with the drip-pan removed. Fig. 5 is a detail of a portion of the edge of the burner-cap.

Like numerals indicate like parts in all the figures of the drawings.

In constructing my burner I employ a circular hollow retort 1, having parallel flat and disk-like bottom and top walls 2 and 3, respectively, and surrounded by a superficial hollow flange 4 on its upper side. Between the bottom and top walls 2 and 3 suitable intermediate stays or braces 4^a are interposed.

The bottom wall 2 is provided at one side of its center with a tubular feed-passage 5, that extends at its upper end above the bottom wall of the retort, while its lower end extends some distance below the same, at which point it is adapted for the reception of a plug for closing the same or for a feed-pipe 6. Between the shoulders of the feed-pipe 6 and the lower end of the feed-passage 5 there is securely clamped and held in position parallel to and under the retort a drip-pan 7, the

same having a surrounding flange 8. One or more threaded openings 9 may be formed in the feed-passage 5, which are closed by threaded plugs 10 when the feed-pipe 9^a is secured to the lower end of said feed-passage. This passage, however, may be closed at its lower end by a suitable plug and the feed-pipe connected to any one of the openings 9 which is unplugged for the reception thereof in accordance with the relative position of the burner and the source of supply or other contingencies.

Diametrically opposite the feed-passage a flanged and threaded opening 11 is formed in the bottom 2 of the retort, and located within the opening and extending above and below the same is the vapor-pipe 12, the lower end of which is provided with a horizontal branch 13, that extends under and beyond the center of the retort between said retort and drip-pan and is closed at its outer end. Below the center of the retort the vapor-pipe is provided in its upper side with a discharge-orifice 14, and that end of the vapor-pipe that is within the retort is preferably notched, as indicated at 15, in order that it may be maintained open even though foreign bodies, such as residuum carbon, should become accidentally lodged thereagainst.

At its center the retort is provided with a walled mixing-chamber 16, the same having its lower half preferably slightly flared, as shown, while its upper half is of a uniform bore and is provided with a central annular horizontal seat 17. Arranged over the retort and resting flat upon the top wall of the same is a convexed metal cap 18, the center of which is provided with an opening 19, from which depends an annular flange 20, the same being designed to fit and be seated upon the seat 17, and thus form a continuation of the mixing-chamber to a point above the upper side of the retort.

At intervals I have cast upon the upper side of the retort in annular series lugs 21, the inner faces of which are beveled, three of such lugs being deemed sufficient, and which for the purpose of convenience I prefer to designate as "centering-lugs," in that they readily center the burner-cap, the beveled faces of the lugs facilitating the same. Spaced a slight

distance from these lugs and on a circle within the same lugs 22 may also be cast upon the upper side of the retort.

23 designates a concavo-convex burner-cap, the same having a peripheral depending flange 24, in which kerfs 25 are at intervals formed, the same thus producing a series of teeth 26, the lower ends of which are beveled at opposite sides, as at 27, thus enlarging the openings or kerfs 25 at these points. At intervals the flange 24 may be provided with radial lugs 28, and I prefer to provide the cap with an integrally-cast vertical flange 29, that extends therearound and strengthens the same. At the upper edge of the cap a horizontal deflecting-flange 30 extends radially.

It will be obvious that the cap, being properly proportioned, will, when placed in position upon the retort, be absolutely self-centering, its flange taking between the lugs 21 and 22, and, in fact, should either one of these be accidentally broken those remaining will serve the purpose; or, again, the radial lugs 28, being guided by the hollow external flange 4, will likewise aid in this purpose, so that a displacement of the cap while on the retort with relation to the mixing-chamber becomes an impossibility.

In operation oil is fed through the oil-passage into the retort until it overflows into the vapor-pipes 12 and 13 and is discharged through the opening 14 into the drip-pan 7. The oil-supply is now cut off and the overflowed oil ignited. The ignition of the oil within the vapor-pan heats the body of oil in the retort and vapor-pipe, causing said oil to vaporize and expand, and as the vapor issues from the discharge-orifice 14 it acts upon the retort, heating and vaporizing the oil therein, and becoming mixed with the air within the mixing-chamber rises therein and is discharged in a gaseous condition against the under side of the burner-cap 23, being diffused by the latter in equal proportions and confined in its radial passage to the openings 25 between said burner-cap 23 and the convex cap 18. Passing through the opening 25 it is maintained horizontally and finally discharged against the tubular deflecting-flange 4, whereby its course is changed and an annular flame results.

The convex cap 18 and its depending flange 20 are made removable from the retort when it is desired to burn natural gas or gas that is already manufactured, such cap being then unnecessary and only being essential when oil is employed. In the latter instance the said cap 18 serves to increase the length of the mixing-chamber, so that a more thorough mixing takes place between the vapor and air, and the flame being feebler than where a natural-gas supply is employed can be more evenly and effectually distributed around and under the burner-cap.

Any suitable form of cut-off may be employed in connection with my burner, but as

a simple form I suggest the one herein shown. At diametrically opposite sides of the retort I form lateral lugs 31, and to one of these I pivot, as at 32, the cut-off plate 33. This plate is made narrow and extends radially under the retort to the opposite lug, where it is provided with a lateral segmentally-shaped extension 34, provided with a slot 35. A headed stud 36 is arranged in the slot and depends from the lug. A perforated ear 37 is formed on the outer end of the cut-off, by which the cut-off may be conveniently operated. This cut-off is widened at its center, so as to form opposite extensions 39 and 40, the first-mentioned being imperforate and the second having a hole 41. It will be obvious that by swinging the cut-off in one direction the mixing-chamber is closed, as when the oil is first ignited, and by swinging it in the opposite direction the mixing-chamber is opened. Thus, also, may the flame be graduated, so as to be more or less intense.

Having thus described my invention, what I claim is—

1. The herein-described burner consisting of a retort, having a central walled opening forming a mixing-chamber, an independent convex cap resting on the retort and having an opening coincident with the mixing-chamber, and a flange depending into the walled opening of the chamber from said cap, and a burner-cap arranged thereover, substantially as specified.

2. The herein-described burner, the same consisting of a retort having a central walled opening, forming a mixing-chamber, a convex cap seated loosely and removably on the retort and having an opening coinciding with the mixing-chamber, and a concave burner-cap arranged thereover and combining with the same to form a vapor-passage, substantially as specified.

3. The herein-described burner, the same consisting of a retort having a central walled opening, the lower end of which is flared and at an intermediate point provided with an annular recess or seat, a convex cap removably seated on the retort and having an opening coinciding with the mixing-chamber, an annular flange depending from the opening and taking within the seat, and a burner-cap arranged over the same and combining therewith to form an intermediate passage, substantially as specified.

4. The burner consisting of the retort having an outer peripheral flange, a cap arranged upon the retort within the flange and having discharge-openings at its lower edge and radial lugs 28 projecting from the edge of the cap and terminating against the flange, substantially as specified.

5. The burner consisting of the retort having a central mixing-chamber and an outer circular vertical peripheral flange, a removable cap of less diameter than the flange arranged over the mixing-chamber and having

openings at its lower edge and inner and outer
beveled lugs formed on the retort in annular
series between the mixing-chamber and flange
so as to embrace the opposite sides of the
5 lower edge of the cap and thus center the
same with relation to the mixing-chamber and
peripheral flange, substantially as specified.

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

HARRY C. HORNISH.

Witnesses:

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GEORGE W. WEIR.