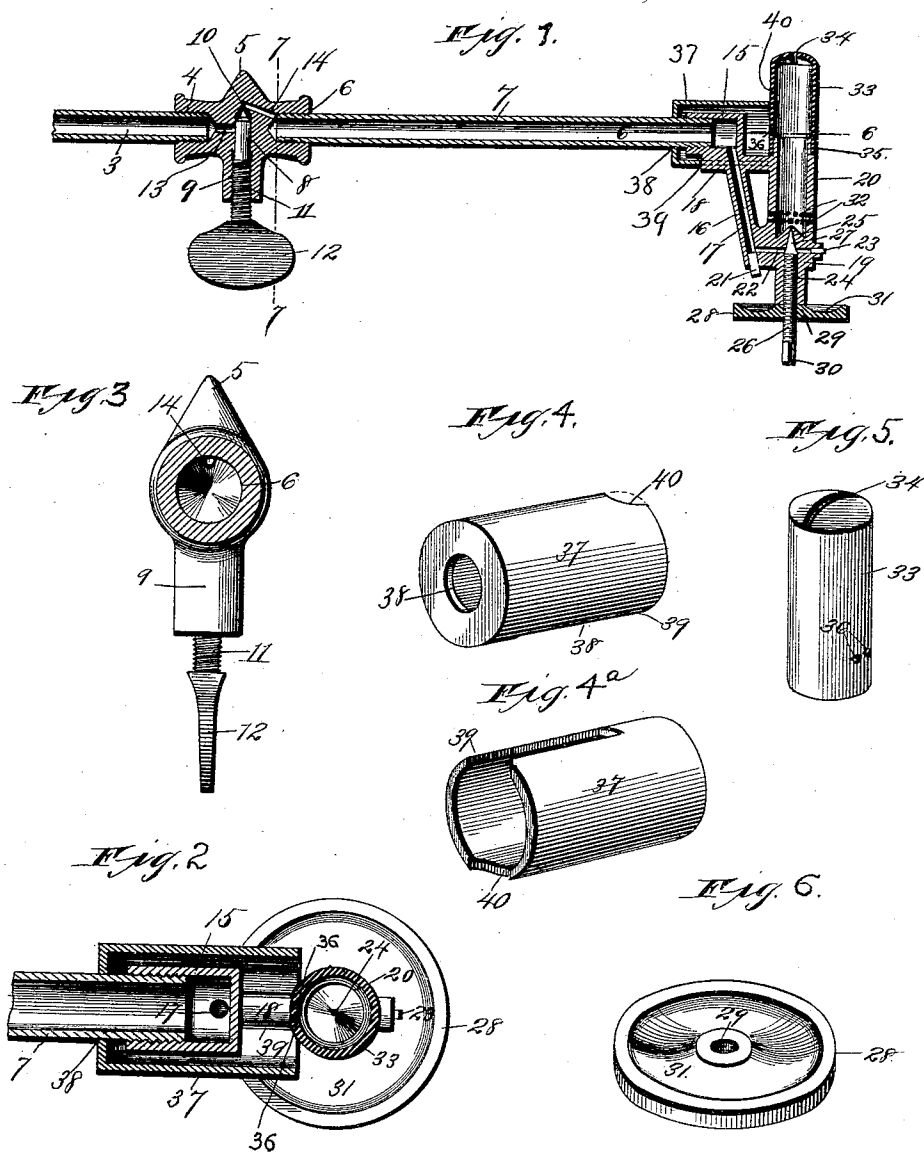


(No Model.)

A. PRIER.
ILLUMINATING VAPOR BURNER.

No. 493,293.

Patented Mar. 14, 1893.



Witnesses:

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UNITED STATES PATENT OFFICE.

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ILLUMINATING VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 493,293, dated March 14, 1893.

Application filed March 14, 1892. Serial No. 424,784. (No model.)

To all whom it may concern:

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

My invention relates to vapor-burners which are used for illuminating purposes.

The objects of my invention are to produce an illuminating burner which shall be simple and inexpensive in construction, and entirely automatic in operation, and which shall be capable of thoroughly and economically vaporizing and consuming gasoline and kindred inflammable oils, and at the same time produce the maximum amount of candle-power of illuminating flame from the vaporized oil.

To the above purposes my invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which:

Figure 1 is a central vertical longitudinal section of the burner and its supply and feed pipes. Fig. 2 is a horizontal section of the same, on the line 6—6 of Fig. 1. Fig. 3 is a transverse vertical section of the inlet-valve, on the line 7—7 of Fig. 1. Fig. 4 is a detached perspective view of the retort or generator casing or shell. Fig. 4^a is an inverted or under side perspective view of the same. Fig. 5 is a detached perspective view of the burner-tip. Fig. 6 is a detached perspective view of the combined igniting cup and burner-valve operating-wheel.

In said drawings 3 designates the supply pipe, one end of which is designed to be connected to a suitable reservoir for gasoline or other inflammable oil, and the lower or opposite end of this supply-pipe 3 is externally screw-threaded to enter the internally screw-threaded socket 4 of an inlet-valve casing 5. This casing 5 is also formed with an internally screw-threaded socket 6 into which is inserted one end of an externally screw-threaded feed-pipe 7; the said socket 6 preferably extending oppositely from the socket 4, as shown.

The body-portion of this casing or shell 5 is formed with a vertical valve-chamber 8, the upper end or seat of which is of tapered or conical form, as shown, while the lower end of said chamber communicates with an internally screw-threaded socket 9 which is pendent from the under side of the casing or shell 5.

Within the valve-chamber 8 works an inlet needle-valve 10 which is of tapered or conical form to fit the correspondingly shaped upper end or seat of the valve-chamber 8. The lower part of the stem of this inlet-valve 10 is externally screw-threaded, as at 11, to engage the internal screw-threads of the pendent socket 9 of the valve-casing, while the lower extremity of said stem is provided with a knob or finger-piece 12 by means of which the valve-stem is turned to raise and lower and consequently close and open the inlet-valve.

13 designates a channel which extends longitudinally or axially through one end of the shell or casing 5; the outer end of said channel communicating with the inner end of the cavity of the socket 4 and the inner end of the channel communicating with the middle of the valve-chamber 8.

14 designates a second longitudinal channel which extends obliquely downward and outward from the upper end of the valve-chamber 8 to the inner end of the cavity of the socket 6; the inner end of the channel 14 communicating with the chamber 8 at one side of its upper end, and the outer end of said channel communicating with the cavity of the socket 6 above the center of the inner end thereof. The opposite end of the feed-pipe 7 from that which is inserted into the socket 6 is externally screw-threaded to enter the internally screw-threaded rear end of the vapor generator 15 of the burner, as shown. This vapor generator 15 is of cylindrical form and is formed integrally with a bracket 18 from which extends obliquely downward and forward a feed-tube 16 for the burner. The channel 17 of the feed-tube 16 extends axially or longitudinally of the tube and opens into the front end of the cavity of the generator 15, at a point below the axial center of said cavity, as shown. The upper end of the feed-tube 16 is united integrally with the under side of the horizontal bracket 18 which is formed integrally with the under side of the

generator 15, and which extends longitudinally of said generator. The front end of this bracket protrudes beyond the front end of the generator 15 and the upper portion of the channel 17 of the feed-tube 16 passes obliquely through said bracket 18 transversely and about midway of the length of the latter. This feed-tube 16 extends obliquely downward and forward from its point of union with the bracket 18 as above stated and at its lower end said feed-tube is integrally united to the base 19 of the vertical burner-tube 20; the lower end of the channel 17 of the feed-tube 16 being closed preferably by a plug 21, necessitated by the boring of said channel. The base 19 of the burner-tube 20 is formed with a transverse channel 22, the outer end of which is closed preferably by a plug 23, necessitated by the boring of the channel 22, and said channel communicating at its rear end with the lower end of the channel 17 of the feed-tube 16. The base 19 of the burner-tube 20 is also formed with a vertical channel 24, the lower part of which is internally screw-threaded and opens out of the lower end of the base 19. The channel 22 communicates with the upper part of the channel 24 and the upper end of said channel 24 is of tapered or conical form, as at 25, so as to form a seat for the needle-valve of the burner.

26 designates the stem of the needle-valve of the burner, said stem being externally screw-threaded to engage the internally screw-threaded lower part of the channel 24 of the burner-tube 20. The upper end of this stem 26 is tapered or formed conically, as at 27, so as to constitute the needle-valve of the burner, and so also as to properly register with the conical valve-seat 25 before described. At its lower end-portion the stem 26 carries an operating-wheel 28 for rotating the valve 26; the lower part of said stem 26 passing through the hub 29 of said wheel. At its lower extremity, the stem 26 is formed with an angular portion 30 to receive a wrench or a similar implement, for turning the stem in the event of said stem becoming clogged in its channel 24 so that it cannot be rotated readily by the wheel 28. It is to be understood that the wheel 28 serves also as an igniting-cup for the burner, as hereinafter explained, and for this purpose the upper surface of the wheel is formed concave, as at 31 to receive a quantity of oil which is to be ignited for starting the generating action of the burner. The burner-tube 20 is preferably of cylindrical form, as shown, and is integrally united at its upper end to the outer end of the bracket 18. Through the sides of the said tube, just above the base 19 thereof, are formed a number of openings 32 which serve to admit air within the burner-tube for supporting the combustion of the vaporized oil, as hereinafter more fully described.

33 designates the tip of the burner, said tip being preferably of cylindrical form as shown, and having a cross-slit 34 at its upper end to

impart the required spread to the flame, necessary to develop the full illuminating power of the flame. The lower end of this tip is left open and rests upon an external shoulder 35 which is formed at the upper extremity of the burner-tube 20; said lower end of the tip being either screwed upon the reduced upper end of the burner or engaged frictionally therewith, as preferred. At one side near its extremity, the tip 33 is formed with two or any desired number of jet-openings 36, the purpose of said openings being to permit jets of ignited vapor to be injected into the retort-shell or casing, hereinafter described, and thus automatically support vaporization of the oil.

37 designates the shell or casing of the retort, said shell or casing being of elongated cylindrical form and placed horizontally and being also of greater diameter than the generator 15. The rear end of this retort shell or casing 37 is formed with an opening 38 through which extends the front end of the feed-pipe 7, and the under side of said shell is formed, at its front end, with a recess 39 which extends longitudinally of the shell or casing, and which opens out at the front end of said shell or casing. This recess 39 corresponds in length with the bracket 18 so that said bracket is closely embraced by the margins of said casing. At its upper side, at a point directly opposite the recess 39, the shell or casing 37 is formed with a second and much shorter longitudinal recess 40 which also opens out at the front end of the shell or casing 37. This recess 40, as well as the outer part of the recess 39, receives the inner side of the tip 33; the margins of said recesses 39 and 40 and of the intermediate end-portions of the shell or casing 37, closely embracing the inner side of the tip, as shown.

It will be understood that in order to start the above described burner into operation, the valves 10, and 27 are opened and a small quantity of oil is allowed to flow out of the air-inlet openings 32 and downward into the cavity of the wheel 28, and is there ignited. The flame from the oil in the cavity of the wheel 28 envelops the base 19 of the burner-tube 20 and the lower portion of the feed-tube 16 and starts the vaporizing action of the burner. As the vapor is emitted from the tip 33 after the burner is well started in operation it is ignited and forms an illuminating flame of great power, and at the same time, the vapor escaping from the openings 36 of the tip 33 is forced into the retort casing or shell 37. These flames envelop the generator 15, and thus continue the vaporization of the oil in said generator; this vaporizing action continuing as long as the oil-supply lasts and the valves 10 and 27 remain open.

From the above description it will be seen that the burner is simple, durable and inexpensive in construction, and also entirely automatic in its operation, and that it is of high illuminating candle-power.

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

5 The combination of a vapor burner, comprising a horizontal generating chamber, and a vertical burner tube having openings 36, and connected to the generating tube by an oblique channel, with a horizontal retort-casing completely surrounding the generating tube, 10 and having an opening 38 for the supply-pipe, and a recess 40 and a recess 39, com-

municating with its open end, which open end fits snugly and closely against the burner tube, and communicates with the openings 36 of the burner tube, substantially as and 15 for the purpose set forth.

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

ANTON PRIER.

Witnesses:

H. E. PRICE,

JNO. L. CONDRON.