No. 786,381. PATENTED APR. 4, 1905.

W. S. QUIGLEY.

INCANDESCENT VAPOR BURNER.

APPLICATION FILED SEPT. 4, 1901.

Fig. 1.

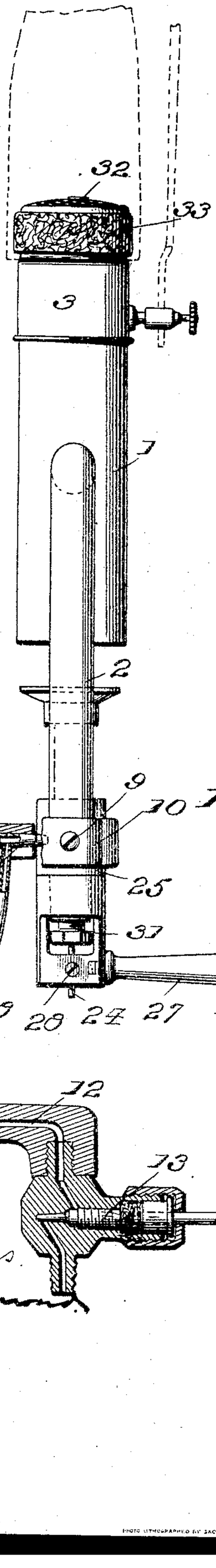

Fig. 2.

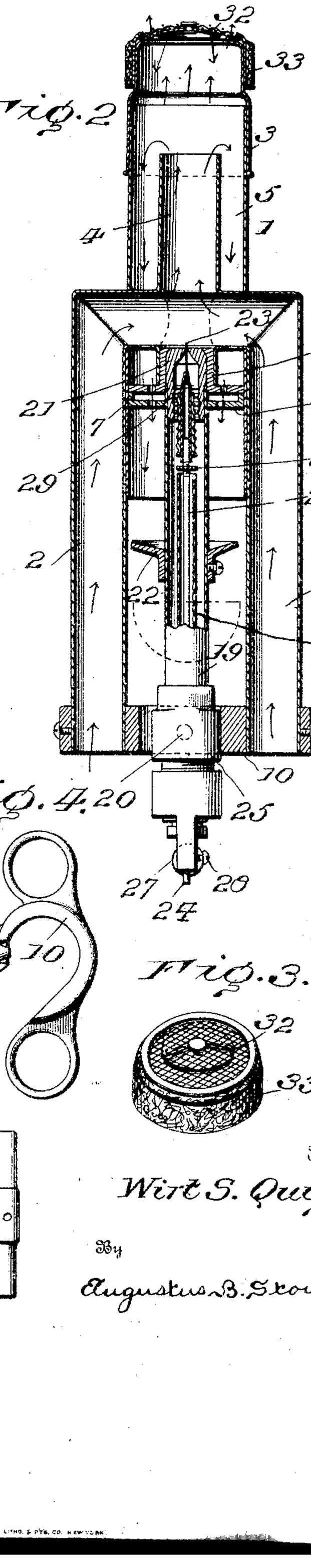

Fig. 3.

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No. 786,381. Patented April 4, 1905.

UNITED STATES PATENT OFFICE.

WIRT S. QUIGLEY, OF PHILADELPHIA, PENNSYLVANIA.

INCANDESCENT VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 786,381, dated April 4, 1905.

Application filed September 4, 1901. Serial No. 74,291.

To all whom it may concern:

Be it known that I, WIRT STANLEY QUIGLEY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Incandescent Vapor-Burners; and I do hereby declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which the invention appertains to make and use the same.

Generally stated, the objects are to provide a burner of the character stated the principal parts of which are readily detachable for purposes of renewing, repairing, or packing, to simplify and improve its general construction, and to make the burner more efficient as a whole.

To the ends stated the invention consists in the improved burner and in the novel features of construction, combination, and arrangement of parts thereof, as will be hereinafter described, and particularly pointed out in the claims.

The nature, characteristic features, and scope of the invention will be clearly understood from the following description, taken in connection with the accompanying drawings, forming a part hereof, in which—

Figure 1 is a side elevational part-sectional view of a burner embodying features of my invention. Fig. 2 is a vertical sectional view through the casing and air-tubes, the vaporizing-tube being partly broken away to disclose the needler. Fig. 3 is a perspective view of the burner-cap and asbestos ring applied thereto. Fig. 4 is a perspective detail of the bracket.

Having reference to the drawings, 1 is an outer tubular casing provided with the downwardly-extending air-intake tubes 2 and with a thimble or burner-head 3. The air-tubes 2 penetrate opposite sides of the outer casing and communicate with and also support a mixing-tube 4, concentrically disposed within the casing, so that there is formed between said casing and mixing-tube an annular space or compartment 5, that constitutes a chamber for a portion of the vapor or mixture of oil-gas and air. There is a subburner arranged below the mixing-tube, which defines the base of said compartment 5 and consists of a reduced tubular portion 6, an inside Bunsen jet 7, and an outside Bunsen jet 8.

The air-intakes 2 are detachably mounted by means of set-screws 9 in the laterally-extended arms 10 of a bracket 11, and said air intakes or tubes 2 serve to support the casing 1 and its connected parts, as aforestated. The bracket 11 communicates with a supply-valve 13 by means of a duct or passage 12, arranged interiorly of the lower horizontal member 14 of the bracket. The upper horizontal member 15 of the bracket is provided with a bore or passage which is threaded at one end to receive a clamping-screw 16, which bears against a movable hollow plug 17, the function of which is to clamp the vaporizing-tube and also serve as an oil-inlet thereto. The plug 17 communicates with the duct or passage 12 of the bracket by means of a tensile tube 18, which is disposed at an angle to the upright portion 11 of the bracket, the tubular support or member 15 being slotted at its lower part to permit freedom of movement of the tube 18.

Between the lateral arms 10 of the bracket there is formed an annular space open toward one of said arms to admit the vaporizing-tube 19. The latter is provided with an opening or oil-inlet 20 for the reception of the plug 17 and is rigidly secured in the bracket by tightening the set-screw 16, as will be readily understood by reference to Fig. 1. When thus properly positioned, the vaporizer tip or nozzle 21 is within the tubular part 6 of the subburner, and a collar 22 is adjusted below the outer casing to concentrate flames from the subburner upon the discharge end of the vaporizing-tube. There may also be a starting device—for instance, an alcohol-cup, as indicated in dotted lines in Fig. 2.

The needler 23 is attached to a needler-rod 24, passing through the needler-body 25. The needler is reciprocated in a core 26 by means of a lever 27, which is revolubly mounted on the needler-body 25 and secured to the needler-rod by a set-screw 28. The needler-rod is

provided with a washer 30 for closing the end of the core 26. 29 is a nipple adjustably inserted in the vaporizing-tip for guiding the needler in its reciprocations. The core 26 can be removed from the vaporizing-tube by unscrewing the plug 31.

The burner-gauze of the burner-head 3 is provided with a deflector 32, which serves to deflect a portion of the vapor in the direction of the subburner via the chamber or compartment 5. The burner-head is also provided with an asbestos ring 33, which acts as a cushion for the skirt of the mantle and prevents the latter from being injured when the burner is vibrated from any cause. This application is shown in Fig. 1.

The operation of the burner in connection with the foregoing description will readily be understood to be as follows: Oil is admitted to the vaporizing-tube by properly adjusting the valve 13, and this initial supply of oil is heated and vaporized in the tube 19 by means of a suitable starting device. This vapor is discharged into the tube 4 and is there mixed with supplies of air from the intakes 2. The resulting mixture of oil-gas and air flows to the burner 3, where portions of it are turned back by the deflector 32 and caused to enter the annular space or compartment 5, which communicates with the subburner. The flames from the subburner are concentrated on the discharge end of the vaporizing-tube by means of the collar 22.

While I have referred somewhat in detail to the construction of the vaporizing-tube without claiming the same in this application, I desire it to be understood that I do not abandon or dedicate such matter to the public, the same forming subject-matter of claims in my copending application, Serial No. 74,292, and the reference in the present case is made merely for a clearer understanding of the subject-matter hereof.

It will be obvious to those skilled in the art to which the invention appertains that modifications may be made in details without departing from the spirit and scope of the same. Hence I do not limit myself to the precise construction and arrangement of parts hereinabove described, and illustrated in the accompanying drawings; but,

Having thus described the nature and objects of the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a burner of the type recited, the combination of a bracket comprising upper and lower members, whereof the lower member is provided with an oil duct or passage, and whereof the upper member is provided with transversely-extending arms with an annular space between them open at one side, a vaporizing-tube confined between said arms, a mixing-tube into which said vaporizing-tube discharges, air-intake tubes respectively supported by said arms and communicating with the mixing-tube, and an oil-supply connection between said duct and vaporizing-tube, substantially as described.

2. The combination with the burner and mixing-tube, of a vaporizing-tube discharging oil-gas across an air-space into said mixing-tube and having an oil-inlet, a bracket comprising upper and lower members, whereof the upper member is provided with transversely-extending arms with an annular space between them open at one side for the reception of the vaporizing-tube, and whereof the lower member is provided with an oil duct or passage, a hollow plug movable toward and away from the inlet of the vaporizing-tube and adapted for communication with the latter, means for causing said plug to simultaneously clamp and communicate with the vaporizing-tube, an oil-supply connection between said duct and plug, and air-intake tubes supported by said arms and communicating with the mixing-tube, substantially as described.

3. The combination with the burner and mixing-tube, of a vaporizing-tube discharging oil-gas across an air-space into said mixing-tube, a bracket having an upper tubular part, a hollow plug movable in said tubular part and adapted for communication with said vaporizing-tube, means for causing said plug to simultaneously clamp and communicate with the vaporizing-tube, a duct or passage in the lower part of the bracket, a tensile tube connecting said duct with the movable hollow plug, and a regulating-valve communicating with said duct, substantially as described.

4. In a burner, the combination with the burner and mixing-tube and the air-intake tubes communicating with the latter, of a vaporizing-tube, a bracket consisting of upper and lower members whereof the lower member is provided with an oil-duct, and whereof the upper member is provided with a tubular part and with transversely-extending arms which support the air-tubes, with a space between said arms for the reception of the vaporizing-tube, a member adjustably fitted in said tubular part for clamping the vaporizing-tube in the bracket, said member having a passage to communicate with the interior of the vaporizing-tube, and oil-supply connections between said duct and member, substantially as described.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WIRT S. QUIGLEY.

Witnesses:
F. B. RANKIN,
F. H. MACMORRIS.