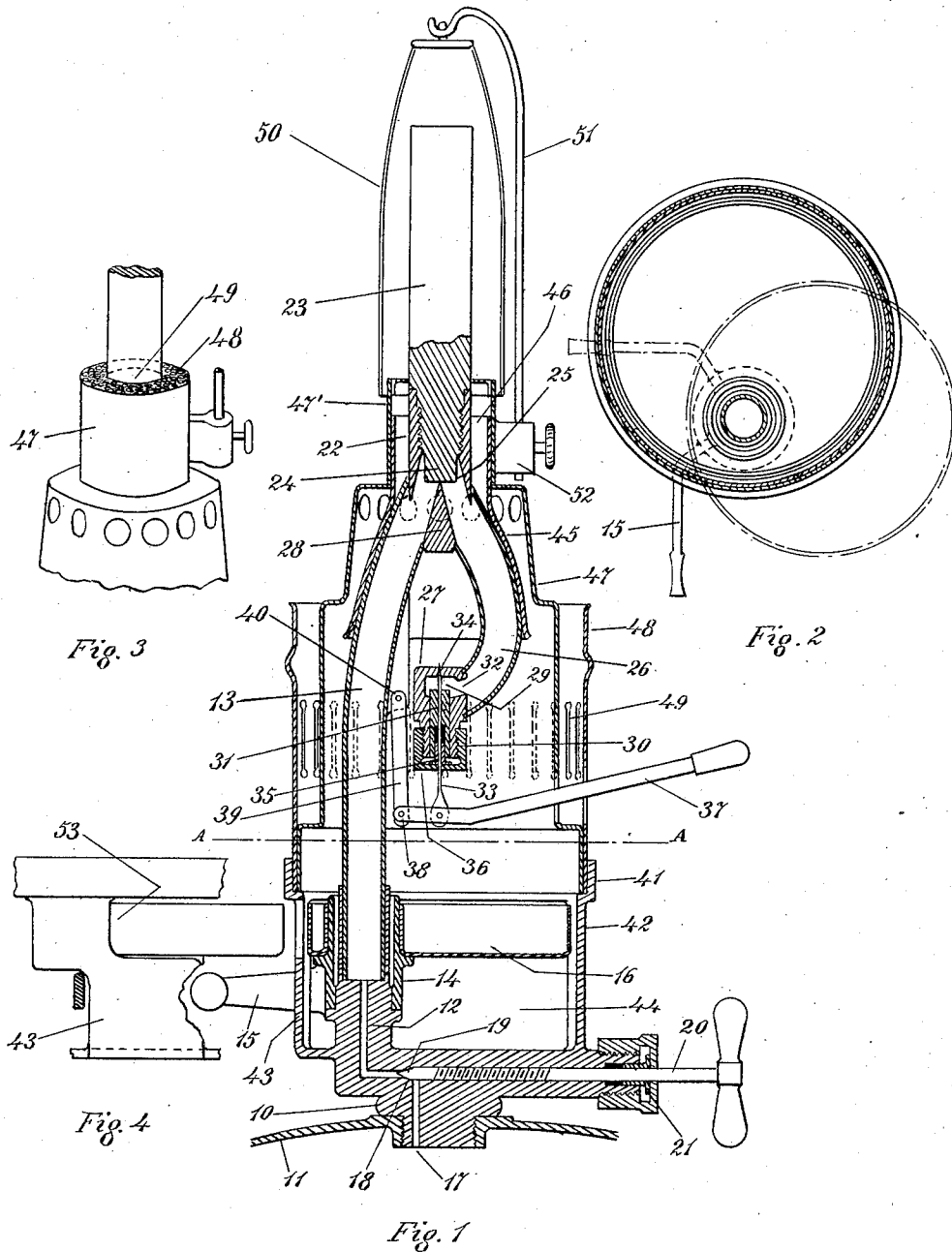


G. REGONDI.
OIL LAMP BURNER.
APPLICATION FILED DEC. 13, 1911.

1,043,725.

Patented Nov. 5, 1912.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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OIL-LAMP BURNER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GIUSEPPE REGONDI, a subject of the King of Italy, residing in the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Oil-Lamp Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to oil lamp burners and more particularly to that class of burners in which the oil is vaporized, previous to being ignited; and its object is to provide an improved oil burner of a peculiar construction such as will insure a perfect vaporization of the oil fed to the same and a complete combustion of the vapors thus formed.

A further object of this invention is to provide an oil lamp burner of a simple construction having novel and improved means for pre-heating the vaporizer previous to lighting the burner, and having novel and simple means for regulating the flame issuing from the same.

With these and other objects in view as will more fully appear as the description proceeds, this invention consists in certain constructions and arrangements of parts as will be hereinafter fully described and claimed in the appended claims.

Referring to the drawings, Figure 1 is a sectional view in elevation of my improved burner; Fig. 2 is a plan sectional view of the same through the line A—A of Fig. 1; Fig. 3 is a detail perspective view in elevation illustrating the burner cap, which I use in connection with my burner; and Fig. 4 is a detail side view in elevation partly broken away of the lower part of my device.

In order to obtain a satisfactory operation in an oil burner, the same must answer to the following principal requirements:—
1st: that there be simple means provided for pre-heating the vaporizer when starting the burner. 2nd: that the oil is preferably pre-heated before reaching the point in which the same is vaporized and that in the point in which the oil is vaporized, the same be compelled to retard its course and to come into intimate contact with an intensely hot surface. 3rd: that the heat produced by the flames be prevented from heating the regulating valves and the part of the oil reservoir connected with the same. 4th: that cold air be prevented from coming in con-

tact with the vaporizing chamber and tube, and that the heat of the vapors formed be maintained as much as possible up to the point of their ignition. 5th: that a heat conducting body accompany the flames produced by the ignition of the vapors, thus acting as a heat storing member conveying the necessary heat to the vaporizing chamber, and at the same time causing a perfect combustion of the solid particles which should be held in suspension in the flame; in other words, counter-balancing the effect of the cold air surrounding the flame which usually leads to imperfect combustion with formation of lamp black. 6th: that the general construction of the burner be simple and inexpensive and that the same be easy to control. All these objects I have endeavored to attain in designing my improved burner, which I shall now fully describe.

10 is a body which is shown as directly mounted on the top of a lamp shell 11.

12 is an upright projecting from said body on which is mounted storage pipe 13. On said upright is also rotatably mounted a support 14 for an alcohol plate 16, provided with an operating handle 15.

17 is a narrow oil duct through which the oil is fed from the reservoir to storage pipe 13, bent horizontally at a point 18 where a seat is formed for a regulating valve 19. The stem 20 of said regulating valve projects on the outside through the stuffing box 21 which insures the hermeticity of the valve body. Storage pipe 13 is bent inwardly toward the center of the device as shown; at its upper end is fixed an internally threaded thimble 22. To this is screwed a solid heat storing member 23, having a part 24 of a narrower diameter projecting inside of thimble 22; and forming between its surface and the internal surface of said thimble a narrow annular passage or chamber 25. Part 23 however can also be made integral with part 22; the same is preferably made of bronze or other good heat conducting material. On the opposite side of thimble 22 is attached a vapor pipe 26 leading to burner tip 27. Direct communication between pipes 13 and 26 is prevented by a partition 28 attached to the same; so that the oil which comes in contact with part 24 can only reach pipe 26 by going around the annular passage or chamber 25.

The burner tip 27 is formed at the upper

part with a chamber 29, and has the lower part threaded at 30; the same is also provided with a longitudinal opening running all through part 30 up to chamber 29, which opening is fitted with a plug 31 projecting inside of chamber 29. Chamber 29 also connects with pipe 26 by means of side opening 32. Part 31 has a passage for a needle valve 33, which can close a very small opening 34 provided through the top of part 27; the escape of vapors through the passage in part 33 is efficiently prevented by a stuffing box 35, retained in place by means of a cap 26 screwed to part 30. The plastic material of said stuffing box also exerts a pressure against the sides of needle valve 33 and the friction thereof is sufficient to keep said valve in any position to which the same is moved. On account of its needle shape, said valve is also adapted to act as a cleaning needle for the burner tip in case there should be dirt plugging the hole in the same. Said needle valve is operated by means of a lever 37 pivoted at 38 to a link 39, attached at 40 to storage pipe 13.

Body 10 of my device is provided with a rim 41 supported by two uprights 42, 43 and adapted to receive the shells which are used in connection with my burner, which shells are also of a peculiar design. As it can be seen from the drawings there is a free space 44 left underneath part 16 through which the air can circulate, cooling part 12 and thus preventing the heat produced by the burner from reaching the regulating valve.

For the purpose of maintaining the vapors at a high temperature and to prevent their condensation, I provide a shell which is substantially of the shape shown in the drawings and which is composed of three distinct parts. One of these is the internal shell 45 inserted directly over pipes 13 and 26 and terminating with a funnel 46 concentric to part 22. Around this I provide an external shell 47, which is held in rim 41 and which is formed up to a certain height with an outside wall 48, provided with perforations 49. On funnel 46 I insert a burner cap 47' which is perforated on the top in 48; the same has also a central opening 49 through which projects part 23.

50 is a mantle which is held around part 23 in any suitable manner, for instance, by means of an upright 51 attached by lug 52 to cap 47.

I have found this construction of burner to work in a very satisfactory manner, producing a perfect vaporization of the oil and combustion of the vapors. The peculiar form of shell which I have shown and described is apt to maintain the vapors issuing from hole 34 at a high temperature so that the same pass through the top of cap 47' at a considerable pressure and are immediately burned. The flames will envelop

part 23 all around and heat the same, and the heat will reach part 24, which is in direct contact with the oil to be vaporized.

Storage pipe 13 as seen in the drawings, is of a larger diameter than duct 17, so that the oil fed to said pipe 13 will remain in the same for some time before it reaches passage 25, and during this time will consequently have been pre-heated to a certain extent. This pre-heating of the oil obviously facilitates its successive transformation in vapor due to the contact with part 24 at passage 25, as stated, the flow of the oil is necessarily delayed, causing the same to come in a most intimate contact with the surface of part 24. The combination of these different details insures a very satisfactory vaporization, the vapor thus produced being practically dry; the operation of the burner is very reliable and there is practically no possibility of dirt plugging hole 34.

When it is desired to start the burner, the vaporizer must be previously heated by a separate source of heat; this I provide by putting alcohol into plate 16; which can for this purpose be swung outward, as shown in Fig. 2; the same is then lighted and replaced in its former position where it can conveniently and thoroughly heat the different parts of the burner. Valve 19 is then opened, allowing the oil to flow through duct 17 and pipe 13, and the out-flow of the vapors from burner tip 27 is regulated by means of needle valve 33, operated, as stated, by means of lever 37.

For the purpose of permitting the swinging outward of part 16, upright 43 is formed with a slot 53 or in any other suitable manner. In similar devices the alcohol plate is usually stationary, and I find the present device to be handier and more convenient to operate.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. In an oil lamp burner, in combination with a body and with fuel feeding and vaporizing means, a heat storing member, an inner shell provided with a funnel concentric to said heat storing member, a foraminous cap mounted on said funnel, and an outer shell, forming an air space around said inner shell and fuel feeding means, mounted on said body; substantially as described.

2. In an oil lamp burner, in combination with a body and with fuel feeding and vaporizing means, a heat storing member, an inner shell provided with a funnel concentric to said heat storing member, a foraminous cap on said funnel and an outer shell forming an air space around said inner shell, and a double air space around said fuel feeding means; substantially as described.

3. An oil lamp burner, comprising a body,

a member upwardly projecting therefrom, a narrow fuel passage through said body and upwardly projecting member, means for closing and regulating the same, a tube forming an enlarged passage for the fuel mounted on said member and upwardly projecting therefrom, a downward passage connected thereto, a partition at the lower part of the connection of said two passages, a thimble at the upper part of the same upwardly projecting therefrom, a member inwardly projecting within said thimble, means for conveying to said member part of the heat produced by the combustion of the burner, means for regulating the out-flow of vapors, and means for pre-heating said fuel passages and heat storing members.

4. An oil lamp burner, comprising a body, a member upwardly projecting therefrom, a narrow fuel passage through said body and upwardly projecting member, means for closing and regulating the same, an oil passage mounted on said member and upwardly projecting therefrom, a downward passage connected thereto, a partition at the lower part of their connection, a thimble attached at the upper part of their connection and projecting therefrom, a heat storing member mounted on said thimble having a portion inwardly projecting therein forming an annular connection between said two passages, an inner shell, an outer shell, a removable cap concentric to said heat storing member, means for pre-heating said passages and heat storing member, and means

for regulating the out-flow of vapors formed in the same.

5. An oil lamp burner, comprising a body, a member upwardly projecting therefrom, a narrow fuel passage through said body and upwardly projecting member, means for closing and regulating the same, an oil passage mounted on said member and upwardly projecting therefrom, a downward passage connected thereto, a partition at the lower part of their connection, a thimble attached at the upper part of their connection and projecting therefrom, a heat storing member mounted on said thimble having a portion inwardly projecting therein forming an annular connection between said two passages, an inner shell provided with a funnel concentric to said heat storing member, a foraminous cap on said funnel, an outer shell leaving an air space around said inner shell, and a double air space around said oil passages, a burner tip provided with a chamber connected to said downward passage, a plug longitudinally mounted therein projecting within said chamber, a needle valve slidably mounted within said plug, a stuffing box for the same, means for operating said needle valve and pre-heating fuel holding receptacle, and means for swingingly mounting the same on said upwardly projecting member leaving a free air space underneath the same.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."