(No Model.)

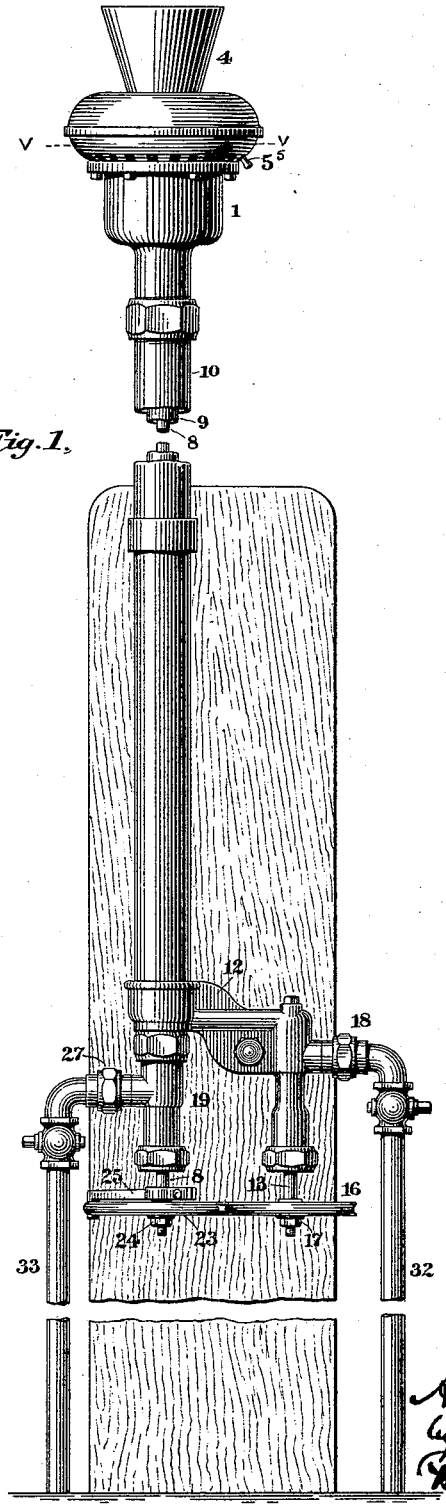
2 Sheets—Sheet 1.

A. SHEDLOCK.

SPRAY LAMP.

No. 457,375. Patented Aug. 11, 1891.

Fig. 1.



Witnesses
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by his attorneys
Baldwin Davidson & Wright

(No Model.) 2 Sheets—Sheet 2.

A. SHEDLOCK.

SPRAY LAMP.

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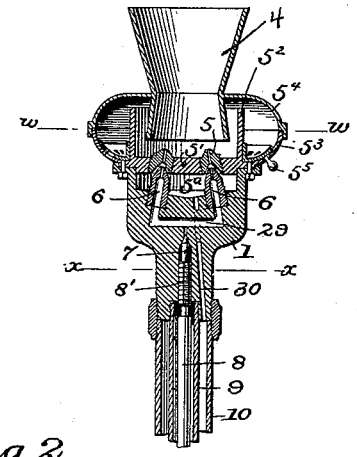


Fig. 2.

Fig. 3

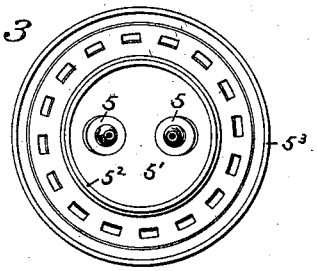


Fig. 4.

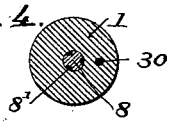


Fig. 6

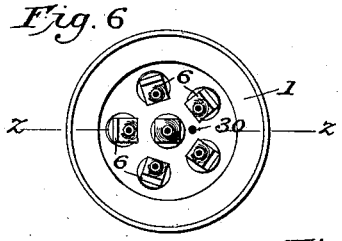
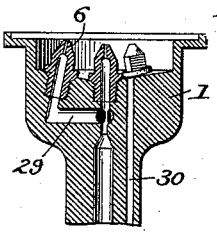


Fig. 7.



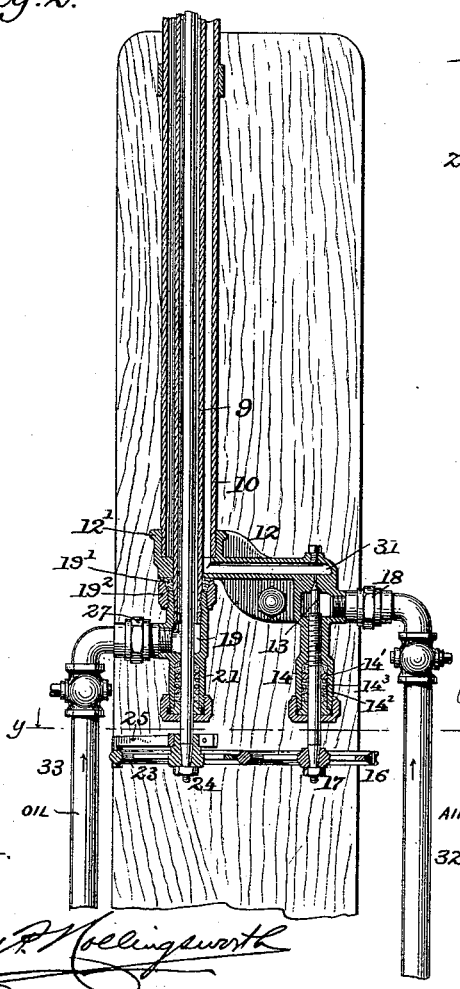
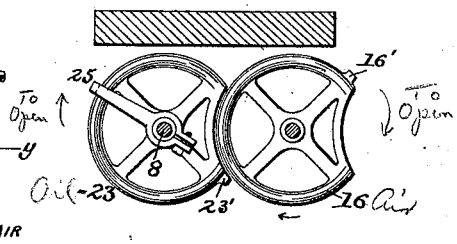


Fig. 5.



Attest.

Sidney F. Mellingsworth

Baltus De Long.

Inventor.

ALFRED SHEDLOCK

by his attorneys

Baldwin Davidson & Wright

UNITED STATES PATENT OFFICE.

ALFRED SHEDLOCK, OF JERSEY CITY, NEW JERSEY.

SPRAY-LAMP.

SPECIFICATION forming part of Letters Patent No. 457,375, dated August 11, 1891.

Application filed September 9, 1889. Serial No. 323,352. (No model.)

To all whom it may concern:

Be it known that I, ALFRED SHEDLOCK, a citizen of the United States, residing at Jersey City, county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Spray-Lamps, of which the following is a specification.

The class of spray-lamps to which this invention belongs is that in which oil under pressure is supplied in a fine jet or spray, which is delivered at the burner with a volume of compressed air, which thoroughly breaks up and sprays the oil and insures perfect combustion.

The primary purpose of my invention is to produce a post-lamp for street or other lighting, though of course the details of construction and operation may be utilized in various other forms of lamps.

The invention includes, among other things, the use of multiple burners or nozzles discharging into a single combustion-chamber, certain improvements in the manner of mounting and connecting the air and oil pipes, and certain improvements in the mechanism for adjusting and turning on and off the supplies of air and oil, all as hereinafter specified.

In the accompanying drawings, which show one embodiment of the invention in a form which I consider desirable and efficient, Figure 1 is an elevation with the body or vertical portion broken away; Fig. 2, a vertical section through the same; Fig. 3, a plan on the line *w w* of Fig. 2, the combustion-chamber and cap of the air-supply chamber being removed; Fig. 4, a transverse section on the line *x x* of Fig. 2; Fig. 5, a section on the line *y y* of Fig. 2; Fig. 6, a plan about on the line *v v* of Fig. 1, but showing a modified construction; Fig. 7, a vertical section on the line *z z* of Fig. 6.

Oil is supplied from any suitable distant source through a pipe 33, that is provided with an ordinary cock or valve. Air is supplied in like manner through the pipe 32, also provided with an ordinary cock. Both the oil and air are supplied under pressure, as is well understood in connection with this class of lamps, and usually the pressure upon the oil in the reservoir is obtained by the compressed air, which serves to spray the oil at the burner.

The air-pipe leads to a casting 12, forming the base of the lamp and bolted to the post or support, is connected therewith by any ordinary union 18, and opens into an air-valve chamber within the base, in which a conically-pointed valve-rod 13 works. This air-chamber is in communication through the seat of the air-valve with a horizontal air-passage 31, leading to the internally-screw-threaded socket 12′, into which the vertical air-pipe 10 screws. The air-valve rod 13 is screw-threaded and works in a tubular threaded extension 14 of the base 12, and is preferably packed in the following manner: Washers 14′ 14^2 are placed with suitable packing around the valve-stem, and between the two washers is a spiral spring 14^3, that presses them apart and compresses the two packings continually, thus compensating for wear of same. The outer packing is held in by a gland or follower, over which there is the usual cap. By adjusting the valve-rod 13 by means of its wheel or handle 16 the supply of air admitted to the pipe 10, and consequently to the burner, as presently described, may be regulated.

The oil-pipe 9 is arranged within the air-pipe 10 and passes through the bottom of the socket 12′ on the base 12 and screws into one end of a T-coupling 19. Suitable packing 19′ is wrapped around the pipe 9, being interposed between this end of the T-coupling and the bottom of the socket 12′, and a screw-threaded nut or collar 19^2, working on the exterior of this end of the T-coupling, has the upper part of its interior wall conical, so as to embrace and overlap the packing 19′. This nut when screwed upwardly toward the socket 12′ compresses the packing both longitudinally and diametrically and insures a tight joint at this point. The oil-supply pipe 33 is connected by any ordinary joint 27 with the lateral extension of the T-coupling. A valve-rod 8, working in the interior of the oil-pipe 9, passes through the T-coupling 19, and the lower end thereof is packed in the same manner as is the air-valve rod, already described.

The burner-head 1 is connected with the upper end of the air-pipe 10 by an ordinary coupling band or collar, and the upper end of the oil-pipe 9 screws into a socket in the under side of the head. The upper end of the oil-valve rod, which is screw-threaded, works in a correspondingly-threaded socket in the head 1 and is formed with longitudinal channels 8′, which permit the passage of the oil to the valve and burner. The conical valve 7

on the end of the rod is seated in an aperture leading into an oil pipe or chamber 29 in the head 1, and from this chamber extend passage-ways leading to oil-nozzles 6 6, screwed into sockets in the head, and preferably inclining toward the axial line of the burner. Air from the air-pipe 10 passes by an aperture 30 through the head 1 to the mixing-chamber 5^a, in which the nozzles 6 are arranged. This chamber is formed by a depression in the upper face of the head 1, which is covered by a horizontal partition 5′, bolted to a horizontal flange surrounding the edge of the head 1. In the partition 5′ are arranged nozzles 5, each of which is concentric with one of the nozzles 6 and arranged in suitable proximity thereto. The oil issuing from the nozzle 6 mingles with the volume of compressed air in the chamber 5^a and both are discharged through the nozzles or burners 5. These nozzles being inclined slightly toward each other, the flames therefrom commingle, the heat of each assisting the other in producing a broad intense flame.

The diaphragm 5′ is provided with a vertical annular flange 5^2 and a horizontally-projecting upwardly-curved annular flange 5^3. A correspondingly-shaped cover 5^4 rests upon the edge of this flange and carries centrally the combustion-chamber 4, which is of the ordinary shape. The lower end of the combustion-chamber projects below the upper end of the vertical flange 5^2, as shown. The flange 5^3 is formed with a series of apertures in connection with which a correspondingly-apertured annular sliding plate works, the plate being moved by a handle 5^5 to regulate the amount of air admitted. The air entering through these apertures passes up over the vertical flange 5^2, then down and up into the combustion-chamber. Air may or may not be thus admitted, as may be found desirable.

Referring now to the manner of adjusting the air and oil supplies and the method of turning the air and oil on and off, the oil-valve rod 8 and the air-valve rod 13 are each provided with a wheel-handle 23 16. The periphery of each wheel is cut out or formed with a recess curved to correspond with the periphery of the adjoining wheel. The wheel 16 may be loosened on the air-valve rod, set to the desired point, and clamped by the nut 17. In like manner the wheel of the oil-valve rod may be similarly adjusted by means of the nut 24. The wheel 16 is provided with a projecting stud 16′ and the wheel 23 with a similar stud 23′. When the lamp is not in operation, the wheels occupy the position illustrated in Fig. 5. The periphery of the wheel 16 occupies the recess in the wheel 23, and consequently the oil-valve cannot be moved. The wheel 16 may, however, be moved in the direction of the arrow to open the air-valve, and this movement may be continued until the stop 16′ thereon strikes the stop 23′ on the wheel 23, when the depressions in the peripheries of the wheels are opposite each other. The wheel 23 may then be rotated in the direction of the arrow to open the oil-valve, and its extent of motion in this direction may be regulated by a radially-projecting stop-arm 25, adjustably clamped upon the valve-rod, as shown. By the adjustment of the stop 25 and the adjustment of the wheels upon the valve-rods the amount of air and oil supplied to the lamp may be regulated.

Obviously in starting the lamp the air-valve must first be operated, and it is equally plain that in extinguishing the lamp the oil-valve must first be closed.

So far as I am aware I am the first to provide a mechanism in which the air-valve handle must be moved to the proper position before the oil-valve handle can be independently moved to turn on the oil, and vice versa, and this idea may be embodied in other mechanical forms. I do not, therefore, limit myself to the particular organization shown.

In Figs. 6 and 7 I have shown a slightly-modified construction, in which six burners instead of two are shown. The central one throws the flame vertically, while the surrounding burners are inclined toward the center. The operation is like that already described, and no additional description is necessary.

I claim as my invention—

1. In a spray-lamp, the combination, substantially as set forth, of two or more spray burners or nozzles inclined toward each other, means for supplying oil and air thereto under pressure, a narrow combustion-chamber, open at the top and into which the burners or nozzles discharge at the bottom, arranged above the burners and constituting a chamber or passage-way above the burners, through which the mingled oil and air and flame rise.

2. In a spray-lamp, the combination, substantially as set forth, of a series of spray nozzles or burners, one being central and the others arranged around and inclined toward it, a combustion-chamber into which all the nozzles discharge, open at the top and arranged above the nozzles and constituting a chamber or passage-way above the nozzles, through which the mingled oil and flame rise.

3. The combination, substantially as set forth, of a narrow combustion-chamber open at the top, through which the flame passes and which prevents the flame from spreading laterally, a series of oil-nozzles 6, through each of which the oil is forced under pressure, an oil-supply pipe communicating with all the oil-nozzles, a valve regulating the supply of oil to the oil-nozzles, a closed chamber 5^a, into which the oil-nozzles project, a compressed-air-supply pipe or passage leading into said closed chamber, a valve regulating the supply of air through said passage, and the nozzles 5, arranged above the oil-nozzles and leading from the closed air-chamber and through which the mingled oil and air are discharged under pressure into the combustion-chamber.

4. The combination, substantially as set forth, of the burner-head, the oil-nozzles therein, the partition arranged above the oil-nozzles, the nozzles mounted thereon, a closed air or mixing chamber below the partition into which the oil-nozzles project, a compressed-air-supply pipe communicating therewith, an oil-pipe for supplying oil directly to the oil-nozzle, a valve, as 13, regulating the supply of compressed air to the mixing-chamber, and a valve in the oil-supply pipe.

5. The combination, substantially as set forth, of a burner-head having the oil-passage and seat for the valve-rod and an air-passage 30, nozzles 6, connecting with said oil-passage, the air-pipe 10, to which the end of the burner-head is coupled, the oil-pipe 9 within the air-pipe and secured into a socket in the end of the head, the oil-valve rod arranged within the oil-pipe and working in a screw-threaded socket in the burner-head, the partition 5′, arranged above the burner-head, and the nozzles therein opposite the oil-nozzles 6.

6. The combination, substantially as set forth, of the burner-head having the oil-nozzles secured thereto and provided with the oil-pipe chamber 29, communicating with all the oil-nozzles, an oil-pipe communicating with said chamber, a valve regulating the supply of oil to the chamber 29, a closed air or mixing chamber 5^a above the chamber 29 and into which all the oil-nozzles discharge, discharge-nozzles 5 in the top of said chamber above the oil-nozzles, a compressed-air-supply pipe, a passage in the burner-head connecting the closed chamber 5^a with said air-pipe, and a valve regulating the supply of air to the air-pipe.

7. The combination, substantially as set forth, of the internally-screw-threaded socket 12′, the air-pipe seated therein, the oil-pipe passing through the air-pipe and through the bottom of said socket, a coupling into which the end of the oil-pipe screws, and a packing interposed between the bottom of the socket and said coupling.

8. The combination, substantially as set forth, of the socket 12′, the oil-pipe passing through the bottom of the socket, a coupling connected with the end of the oil-pipe, packing interposed between the end of the coupling and the bottom of the socket, and a nut on the coupling having a conical bore bearing on the packing.

9. In a spray-lamp, the combination, substantially as set forth, with the base 12, having a socket 12′ for the reception of the air-pipe, a passage 31, communicating with said socket, an air-chamber into which compressed air is admitted, and a valve-opening connecting said chamber and the passage 31, of an adjustable valve for regulating the amount of air passing through the valve-opening from the air-chamber, an air-supply pipe leading to the chamber and a valve in said pipe, and an oil-pipe passing through the bottom of the socket 12′, a coupling into which the end of the oil-pipe screws, and an oil-supply pipe connecting with the coupling.

10. In a spray-lamp, the combination, substantially as set forth, of a burner, air and oil pipes communicating therewith, a valve regulating the supply of oil to the burner, a valve regulating the supply of air, separate valve-rods for operating each valve, independent valve-rod-operating devices for opening and closing the air-valve, independent valve-rod-operating devices for opening and closing the oil-valve, and locking devices interposed between the two valve-rod-operating devices, whereby in starting the lamp the air-valve must first be independently opened before the oil-valve can be moved, and in shutting off the lamp the oil-valve must be first independently closed before the air-valve can be closed.

11. In a spray-lamp, the combination, substantially as set forth, of independent operable air and oil supply valves, separate devices for independently operating each valve, and locking devices interposed between the valve-operating devices, whereby in starting the lamp the air-valve must first be opened before the oil-valve-operating device can be moved, and in shutting off the lamp the oil-valve must be first operated before the air-valve can be closed.

12. In a spray-lamp, the combination, substantially as set forth, of the independently-operable air and oil supply valves, separate devices for independently operating each valve, and devices joining the valve-operating devices which permit of their independent movement, but which in starting the lamp necessitates the opening of the air-valve before the oil-valve can be opened, and in shutting off the lamp the closing of the oil-valve before the air-valve is closed.

13. In a spray-lamp, the combination, substantially as set forth, of the independently-operable air and oil valves and a wheel-handle for operating each valve, the paths of rotation of which handles intersect each other, and the wheels being formed with recesses, for the purpose specified.

14. In a spray-lamp, the combination, substantially as set forth, of the air and oil pipes, the air and oil valves, air and oil valve rods, recessed wheel-handles adjustably secured on said rods, and stops on the handles.

15. In a spray-lamp, the combination, substantially as set forth, of the air and oil pipes, the air and oil valves, the air and oil valve rods, the wheel-handles adjustably secured on said rods, the stops on the wheels, and a stop, as 25, adjustable around the axis of one of the wheel-handles.

In testimony whereof I have hereunto subscribed my name.

ALFRED SHEDLOCK.

Witnesses:
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LLOYD B. WIGHT.