No. 632,761. Patented Sept. 12, 1899.

H. F. SMITH.

STREET LAMP.

(Application filed Mar. 30, 1899.)

(No Model.) 2 Sheets—Sheet 1.

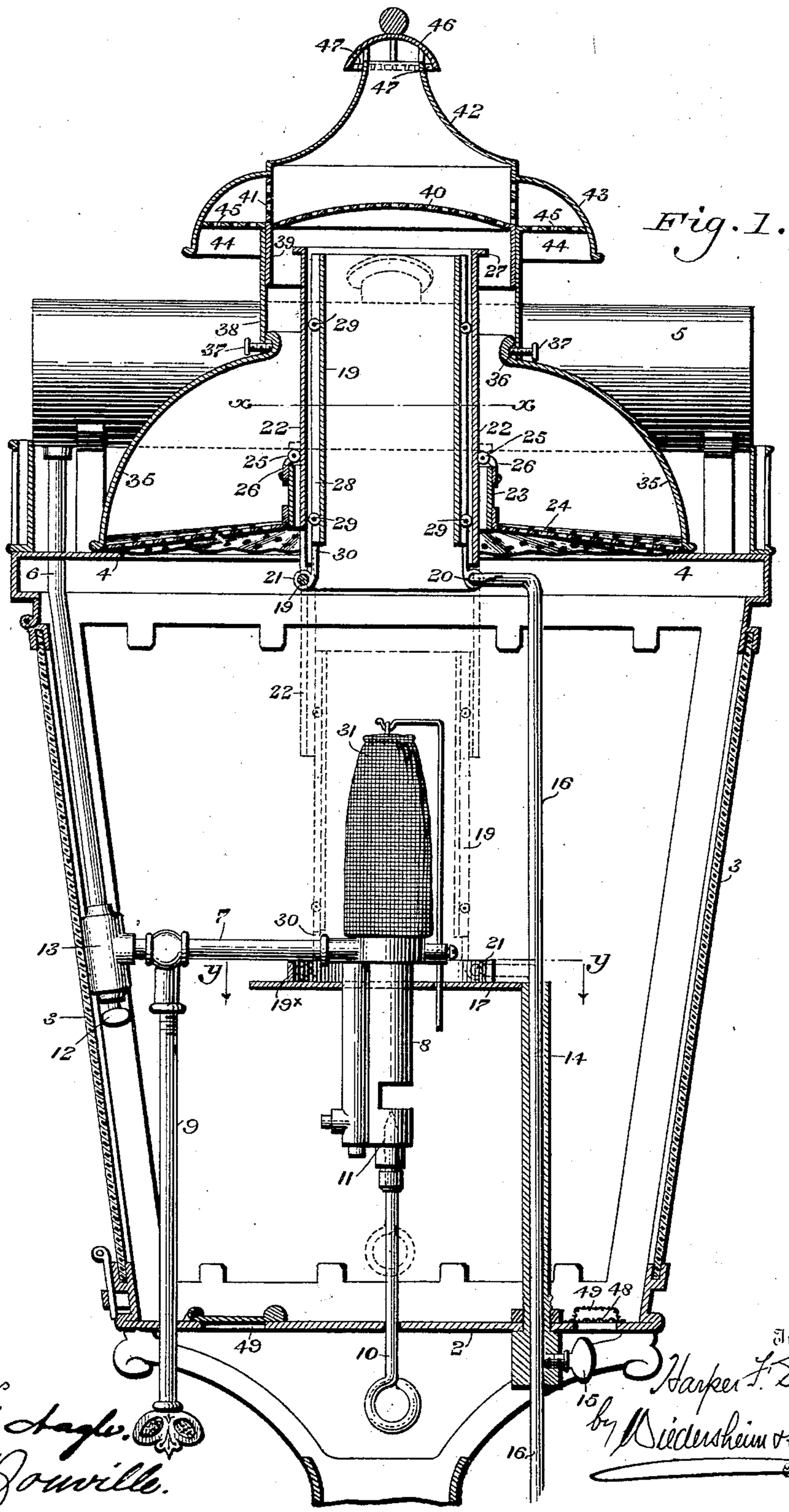

Fig. 1.

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Fig. 4.

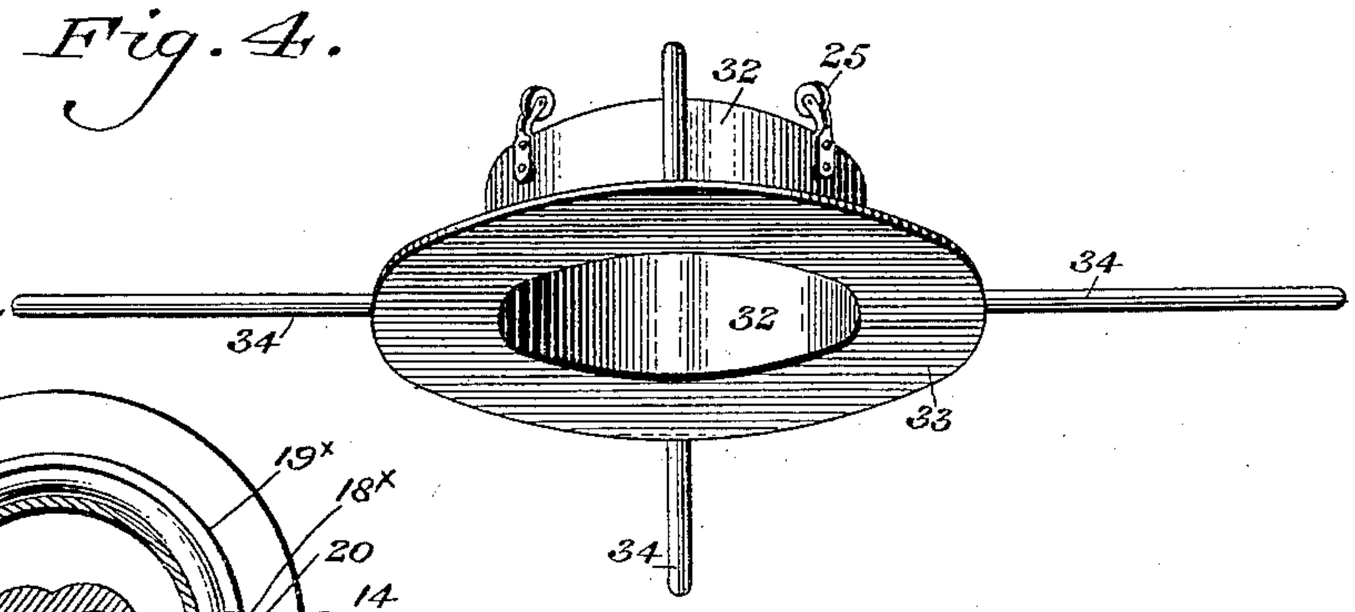


Fig. 5

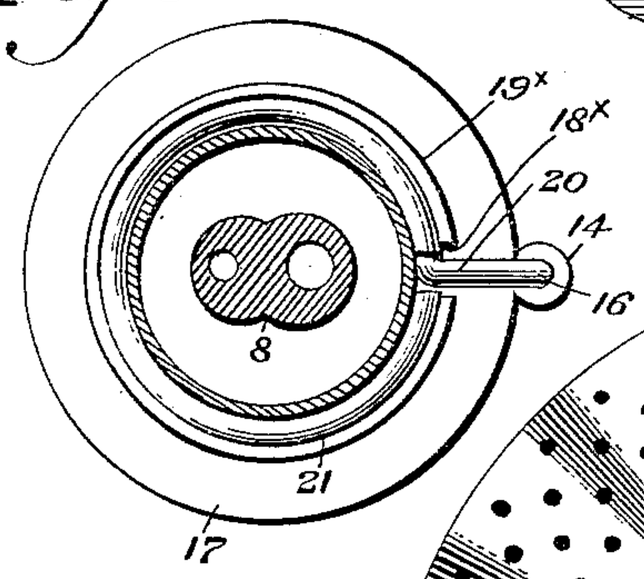


Fig. 2.

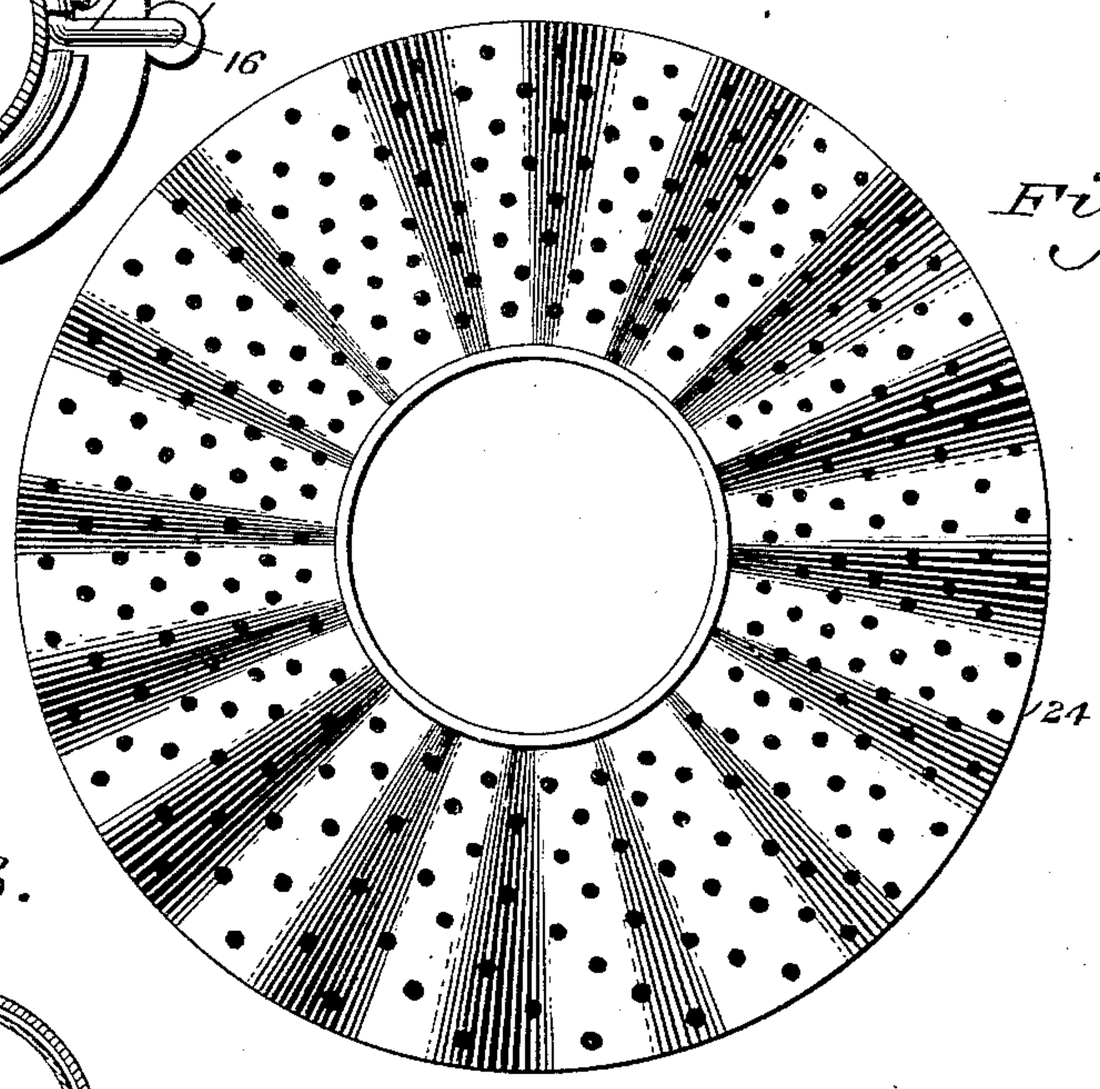
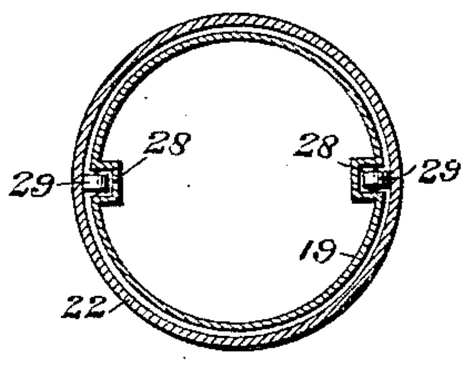


Fig. 3.



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UNITED STATES PATENT OFFICE.

HARPER F. SMITH, OF PHILADELPHIA, PENNSYLVANIA.

STREET-LAMP.

SPECIFICATION forming part of Letters Patent No. 632,761, dated September 12, 1899.

Application filed March 30, 1899. Serial No. 711,067. (No model.)

To all whom it may concern:

Be it known that I, HARPER F. SMITH, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Lanterns, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to lanterns; and it consists of an improved construction of a hood and an upper exit-flue or chimney having an upper and lower cap supported thereon, said exit-flue being provided with a transverse or dome-shaped gauze or screen located therein, the raised portion leading toward said caps, the outer annular passage formed between said flue and the outer depending portion of the lower cap being bridged or provided with a lateral and upright screen or gauze, whereby the force of the incoming air is broken and diminished, the uppermost portion or upper cap being provided with openings for the exit of the products of combustion.

It further consists of a stationary sleeve provided with rollers suitably attached thereto, said sleeve serving as a guide and being supported upon a perforated inclined smooth or corrugated diaphragm or reflector, the under surface of which may be enameled, painted, or constructed of such material as will radiate the light downwardly and outwardly from the lantern.

The invention further consists of a skeleton frame or spider to which the sleeve or guide above mentioned is attached, which may be utilized in place of the perforated disk or diaphragm above referred to.

It further consists of a novel construction of mantle-protector consisting of telescoping tubes which are provided with antifriction-rollers attached thereto of such material as will be impervious to heat or cold, like clay, china, or any other material, so that said tubes are not affected by their expansion or contraction from cold or heat and can be readily moved up and down without jarring, one of said tubes having a rod or handle depending therefrom and passing through a suitable upright guide attached to the lower portion of the lantern and provided with a locking device whereby said telescoping-tubes can be held in elevated position when it is not desired to lower them to their supporting plate or platform, which may be attached to said guide or burner.

It further consists of a novel construction of a plate or platform surrounding the burner, which is attached to the guide above referred to or to another suitable support, upon which plate one of said tubes rests when in its lower position, whereby the lantern or burner can be cleaned without injury to the mantle, said plate also serving as a shield and protector for the mantle from drafts and winds, and further as a shield to the mantle while the lower portion of the burner is being initially heated by the igniting-torch.

It further consists of novel details of construction, all as will be hereinafter fully set forth, and particularly pointed out in the claims.

Figure 1 represents a vertical sectional view of a lantern embodying my invention, certain portions of the apparatus being shown in elevation. Fig. 2 represents in detached position a plan view of an apertured diaphragm or reflector employed through which the telescoping tubes are guided. Fig. 3 represents a section on line *x x*, Fig. 1. Fig. 4 represents a perspective view of a modified construction of a guiding-sleeve and a spider or skeleton frame employed for supporting the same. Fig. 5 represents a section on line *y y*, Fig. 1, assuming the mantle-protecting tube to be in its lowest position.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a lantern, the same consisting of the base portion 2, upon which are supported the upright transparent sides 3 and the inwardly-extending shelf or flange 4, upon which is sustained the hydrocarbon-reservoir 5, the contents of the latter being conducted therefrom through the depending pipe 6 to the branch 7, which leads to the burner 8, the latter being of any suitable construction, but preferably constructed according to prior patents granted to me in this same class of invention.

9 designates the handle of a valve for controlling the flow of the hydrocarbon through the pipe 7, while the flow of the vapor to the lamp is controlled by means of the handle 10, which actuates a suitable needle-valve 11.

12 designates a drip which is attached to the fitting 13, the function of which is evident.

14 designates an upwardly-extending tube or guide which is secured to the base 2 or other portion of the lantern in any suitable manner and has a thumb-screw 15 located in the portion thereof which projects below said base for the purpose of locking the rod 16 in the desired position.

17 designates a plate or platform which is supported upon the upper portion of the guide 14 and may be also secured to the burner 8 or otherwise supported, said plate serving as a shield and protector for the mantle from drafts and winds and also as a shield for said mantle while the bottom of the burner is being initially heated by a suitable torch. The plate 17 is also adapted to support the inner telescoping tube 19, which has the laterally-deflected member 20 of the rod 16 attached thereto, said inner tube 19 having the enlargement or bead 21 at its lower portion which serves as a support for the outer telescoping tube 22, which is suitably guided in the sleeve 23, which is attached to the perforated diaphragm or reflector 24. 25 designates anti-friction-rollers, constructed of porcelain or other material impervious to heat, which are mounted it suitable bearings 26, the descent of said outer tube 22 being limited by the upper lip or flange 27, the latter contacting with the rollers 25 when in its lowest position.

28 designates recesses in the tube 19, in which are journaled the rollers 29, of material impervious to heat, whereby it will be seen that the inner and outer tubes will always be freely movable relative to each other, said outer tube dropping by gravity when the inner tube is lowered.

30 designates a recess in the lower portion of the inner tube 19, which is adapted to receive the lateral pipe 7, whereby the lower portion of said tube 19 can rest upon the platform 17 in its lowest position, as will be understood in dotted lines in Fig. 1, thereby effectively protecting the mantle 31 when the lantern is in the act of being cleaned. In order to prevent displacement of the inner tube 19, I attach the annular wall $19^{\times}$ to the platform 17, said wall having an opening $18^{\times}$ for the reception of the rod 20.

In place of the sleeve 23 on the perforated diaphragm or reflector 24 (seen in Figs. 1 and 2) I may employ the sleeve 32, (seen in Fig. 4,) which is attached to the ring 33 and has the rods, spider, or skeleton frame 34 attached thereto, the latter being adapted to rest upon the shelf 4 or other suitable support, and said sleeve 32 being also provided with rollers 25, which are impervious to heat and are supported thereupon in any suitable manner.

35 designates a hood supported upon the ledge or shelf 4 and suitably secured thereupon or made integral with said shelf, if desired, and having its upper portion provided with the annular socket 36, which is engaged by the set-screws or other fastening devices 37, the same passing through the shell or cylinder 38, which supports the exit-flue 39. 40 designates a dished or dome-shaped gauze or screen located transversely of said exit-flue 39, which latter has the upwardly-extending annular gauze or screen 41 therein, which bridges the space between the exit-flue 39 and the lower cap 42, the lower flaring portion 43 of said cap extending below and exterior to said exit-flue, whereby the annular air-inlet passage 44 is formed, in which is located the transverse screen 45.

46 designates the upper cap supported upon the lower cap 42 and provided with the openings 47 therein, communicating with the atmosphere.

The operation is as follows: The parts are shown in their normal position in Fig. 1, and it will be evident that the flow of the hydrocarbon or the vapor to the burner 8 can be regulated with great exactness by means of the handles 9 and 10. The inner and outer telescoping tubes 19 and 22 are held in their uppermost elevated position by means of the locking device 15. The plate or platform 17 serves to protect the mantle from drafts of wind coming through the openings 48 in the lower portion of the lantern, said openings being provided with doors or screens 49, so as to break the force of the wind in bad or tempestuous weather, said gauze being either flat upon the bottom of the lantern or raised into conical shape. The gauze moderates, tempers, and softens the action of the wind and causes the wind or atmosphere to enter the lantern in a gentle manner. The burner is lighted by inserting the torch through the opening 49, the shield or plate 17 serving to protect the mantle while the lower portion of the burner is being initially heated by the lighted torch, as is evident.

The reflector or diaphragm 24 can be smooth or corrugated and is preferably provided with perforations and has its under surface painted with a coating of white enamel or similar material for the purpose of reflecting the light downwardly and outwardly from the lantern. The diaphragm 24 further serves as a support for the sleeve 23 and the antifriction-rollers 25.

The inner and outer telescoping tubes 19 and 22 normally appear as seen in Fig. 1, the outer tube 22 being supported upon the lower flaring portion 21 of said inner tube, while the extent of movement of said outer tube is limited by the contact of the flange or lip 27 with the rollers 25.

When it is desired to clean the burner or lantern, it is very essential that the mantle 31 should be protected from injurious drafts or contact with the cleaning devices, and in order to effect this the locking device 15 is loosened and the tubes 19 and 22 are lowered into the position indicated in dotted lines in Fig. 1, the plate 17 serving to support said tubes, as is evident, wherefrom it will be seen that the mantle will be completely inclosed

at its sides and lower portion and injury thereto is positively prevented.

By the provision of the exit-flue and the manner of securing the same to the shell or hood 35 it will be seen that the parts can be readily assembled and disconnected, and by the employment of the screens 45 and 41 it will be seen that the force of the air entering the annular passage 44 will be broken prior to its final exit through the ports 47, and by the employment of the crowned or dome-shaped screen or gauze 40 the exterior air will be prevented from injuriously affecting the draft which takes place through the inner tube 19.

By adjusting the position of the inner and outer tubes 19 and 22 relative to each other it will be seen that a chimney or draft-passage of varying length is provided. The pin-valve 11 and the supply-valve in the lateral pipe 7 can be operated from the interior or exterior of the lantern, the handles of both of said valves being extended through the base 2, as is evident from Fig. 1.

It will be evident that, if desired, I may employ interlocking devices of any suitable character common to the upper portion of the inner tube 19 and the lower portion of the outer tube 22 for the purpose of assisting in causing the descent of said tube 22; but this construction need not necessarily be employed in every instance.

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

1. In a lantern, a burner suitably supported, a mantle for said burner, a plate adjacent to said burner and located below said mantle, an upright guide, a rod passing through said guide, a protector for said mantle actuated by said rod, and a locking device for the latter, said protector resting on said plate when surrounding said mantle.

2. The combination of a burner, a perforated diaphragm or reflector supported above the same, telescoping tubes movably supported in said diaphragm, a plate surrounding said burner and adapted to form an abutment for said tubes and actuating devices for the latter.

3. In a lantern, a sleeve suitably supported above the burner thereof, telescoping tubes mounted in said sleeve, antifriction devices common to the latter and to said tubes, a plate surrounding said burner and located below the mantle thereof and means for actuating said tubes toward and from said plate.

4. In a lantern, an upright guide supported upon the base thereof, a plate secured to the upper portion of said guide and surrounding a burner, a mantle for said burner, a rod passing through said guide and attached to a movable tube normally located above said burner said tube being adapted to rest upon said plate when surrounding said mantle and locking devices for said rod.

5. In a burner, the combination of a sleeve, rollers supported thereon, inner and outer telescoping tubes located within said sleeve, antifriction devices common to said tubes, means for limiting the upward and downward movement of said tubes and a plate suitably supported adjacent said burner and below said mantle.

6. The combination with a lantern, of a suitable casing, a hydrocarbon-reservoir supported above said casing, a burner located within the latter, a fuel-supply pipe leading to said burner and having a lateral branch, a needle-valve having an operating-handle extending through the base of said lantern and a valve for said supply-pipe having its controlling-handle also extended through said base, an upright guide suitably secured to the latter, a plate attached to said guide and surrounding said burner, a rod passing through said guide, a locking device for said rod and a tube suitably guided and adapted to rest on said plate and inclose said mantle when it is desired to clean said lantern or burner.

7. In a lantern, the combination of an exit-flue having a transverse screen or gauze 40 located therein, a lower cap located above said exit-flue and having screens 41 and 45 located therein and bridging the annular passage 44 located exterior to said exit-flue, and an upper cap 46 the latter being provided with passages leading from the interior to the atmosphere.

8. The combination with a lantern-casing, of a hood or dome 35 supported thereupon, a shell or cylinder 38 supported upon said hood, an exit-flue 39 carried by the latter, a transverse dome-shaped screen or gauze 40 located in said exit-flue, a lower cap supported above said flue and provided with upright and lateral screens or gauze 41 and 45 which bridge the annular passage 44 leading into the interior of said cap and an upper cap 46 provided with openings leading from the interior of said lower cap to the atmosphere.

9. In a lantern, an upright guide secured to the base thereof interiorly and exteriorly, a locking device in the exterior of said guide, a rod passing through the latter, a telescoping tube manipulated by said rod, and a plate to receive said telescoping tube, said plate surrounding the burner and attached to said guide, and having an annular wall provided with an opening therein, said wall being adapted to receive the lower portion of said telescoping tube and said opening being adapted to receive the laterally-extending member of said rod.

10. In a lantern, a burner, a mantle therefor, a plate adjacent to said burner and located below said mantle, an annular wall on said plate, a rod suitably guided, and a protector for said mantle carried by said rod, said protector being adapted to rest upon said plate in proximity to said wall when surrounding said mantle.

11. The combination of a burner, a sleeve suitably supported above the same, telescop-

ing tubes movable in said sleeve, a plate adjacent said burner, and adapted to form an abutment for said tubes and means for actuating the latter.

12. In a lantern, a burner, a plate adjacent to the latter, a mantle-protector adapted to rest on said plate when in its lowest portion, an opening in the lower portion of the lantern, and gauze covering said opening and retarding the ingress of air to the interior of the lantern.

13. In a lantern, a burner suitably supported, a mantle therefor, a plate adjacent to said burner and located below said mantle, a protector for the latter, and means adapted to be operated from the exterior of the lantern for raising and lowering said protector, the latter resting on said plate when surrounding said mantle, in combination with a guide for said means, said guide supporting said plate.

14. In a lantern, a burner suitably supported, a mantle therefor, a plate adjacent to said burner and located below said mantle, a protector for the latter, devices adapted to be operated from the exterior of the lantern for raising and lowering said protector, and means for holding said protector normally in elevated position above said mantle, said plate serving to support said protector when the latter is surrounding said mantle, in combination with a guide for said devices, said guides supporting said plate.

15. In a lantern, a burner suitably supported, a mantle therefor, a plate adjacent to said burner and located below said mantle, a protector for the latter, means exterior of the lantern for raising and lowering said protector, the latter resting on said plate when surrounding said mantle, and a ring supported on said plate for the purpose of guiding and retaining said protector in position when the latter rests upon said plate.

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