(No Model.) 3 Sheets—Sheet 1.

C. H. VAN HISE.

LAMP.

No. 458,509. Patented Aug. 25, 1891.

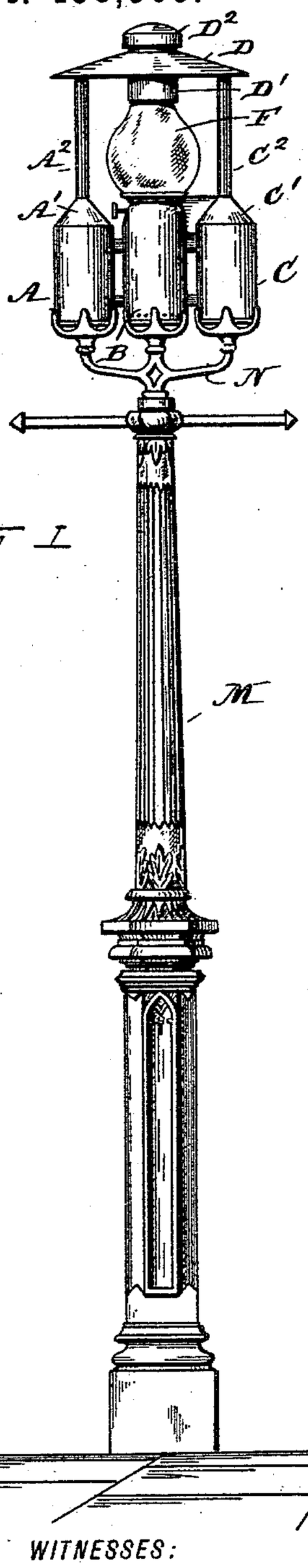

Fig 1

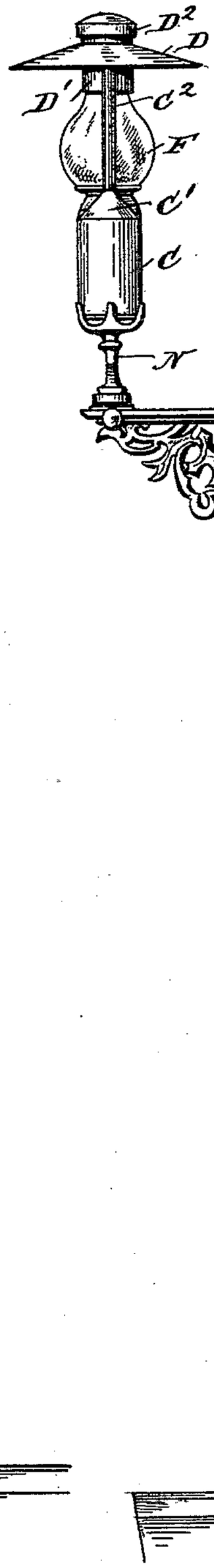

Fig 2

WITNESSES:

H. Walker

C. Sedgwick

INVENTOR:

C. H. Van Hise

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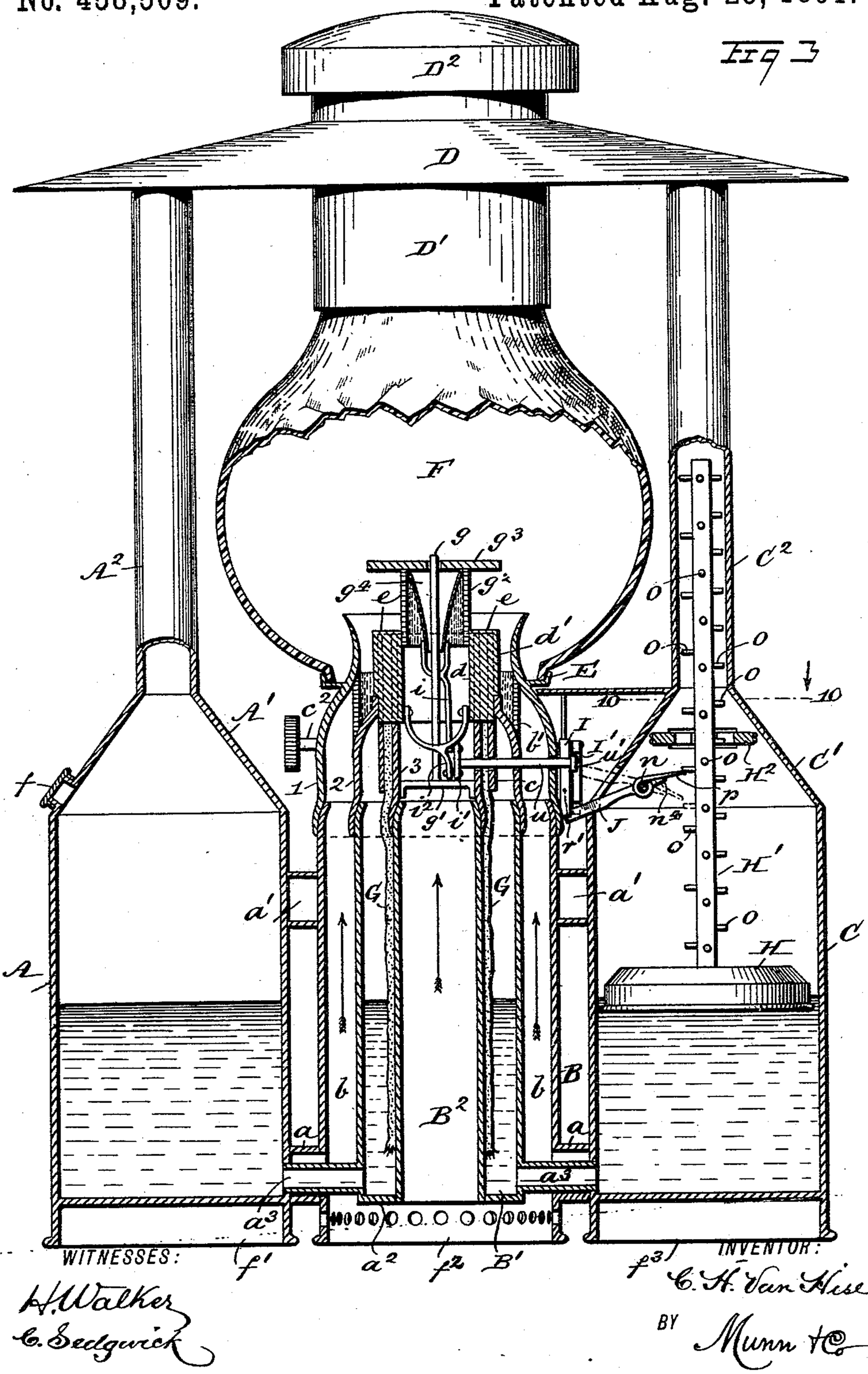
Fig 3



WITNESSES:

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(No Model.) 3 Sheets—Sheet 3.

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Fig 4

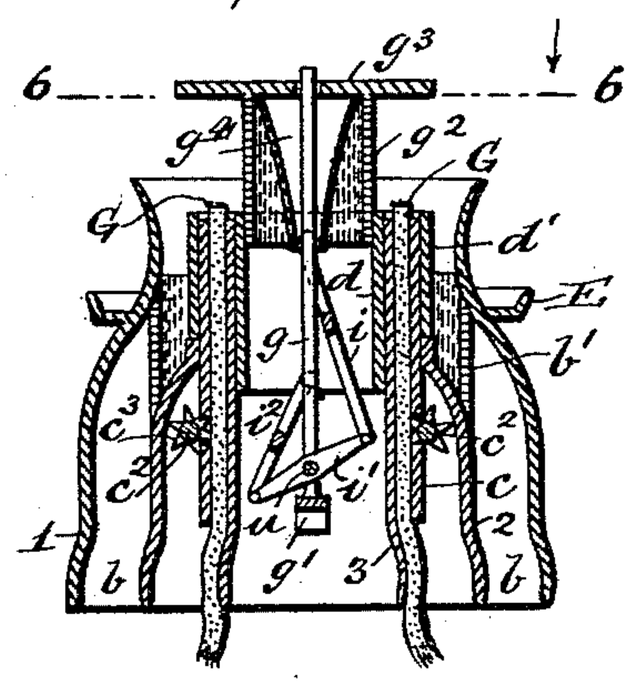


Fig 5

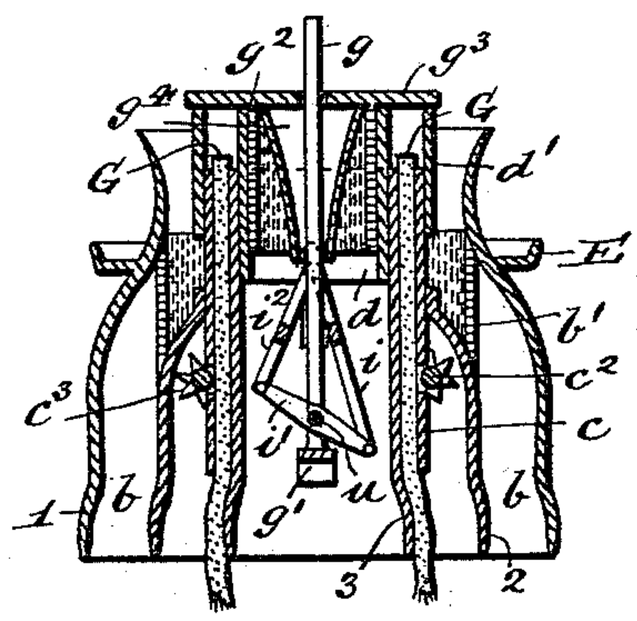


Fig 6

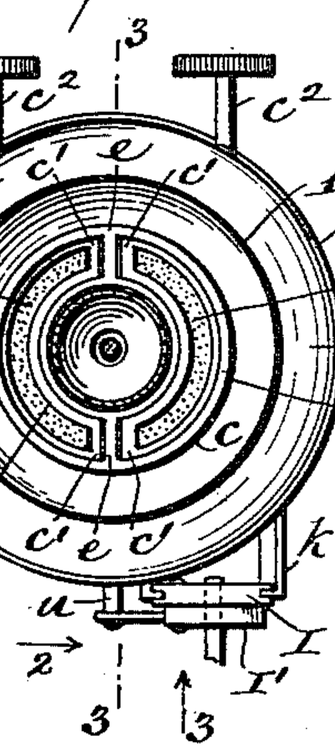


Fig 7

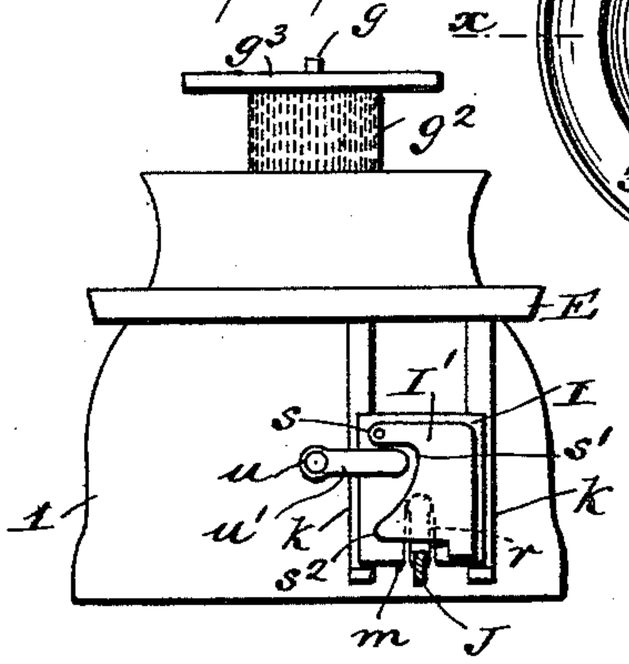


Fig 9

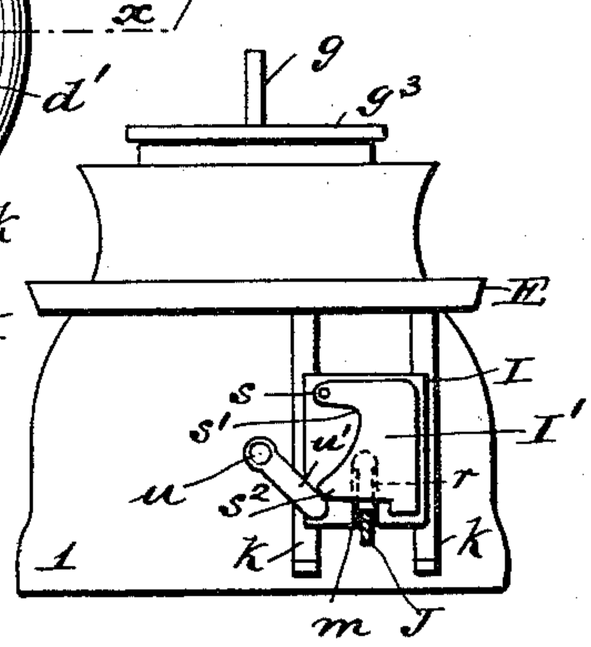


Fig 8

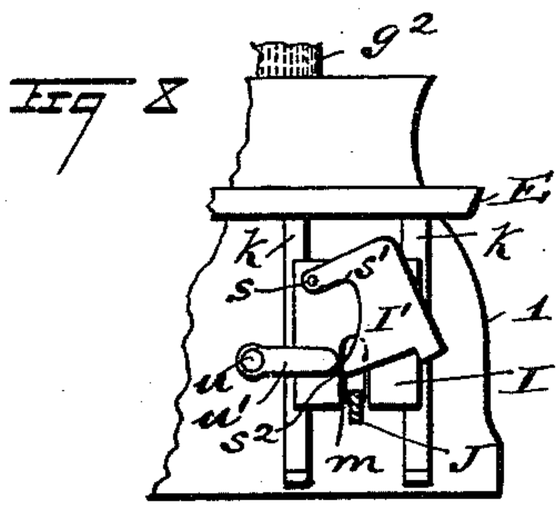
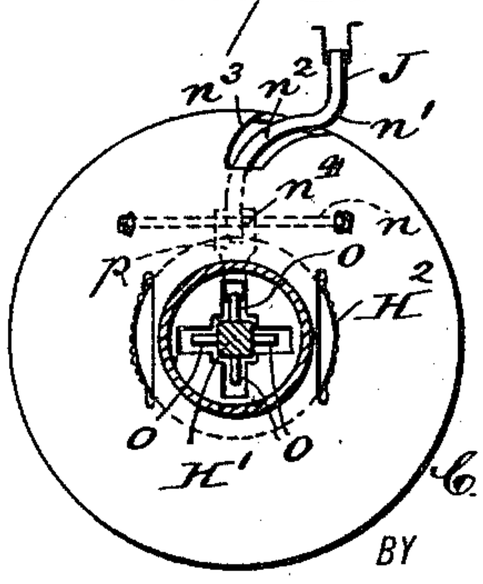


Fig 10



WITNESSES:

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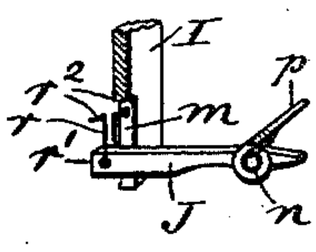

Fig 11

INVENTOR:

C. H. Van Hise

BY

Munn & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES H. VAN HISE, OF NEW YORK, N. Y.

LAMP.

SPECIFICATION forming part of Letters Patent No. 458,509, dated August 25, 1891.

Application filed October 9, 1890. Serial No. 367,534. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. VAN HISE, of New York, in the county and State of New York, have invented a new and useful Improvement in Lamps, of which the following is a full, clear, and exact description.

This invention relates to oil-burning lamps, and has for its objects to produce a lamp adapted for the illumination of streets or other exterior service and containing means for self-extinguishment at any desired period of time, the devices for predetermined extinguishment being also applicable to fixed or portable lamps that may be employed for interior use.

To these ends my invention consists in the construction and combination of parts, as is hereinafter described, and indicated in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of the complete lamp mounted upon a post for exterior illumination. Fig. 2 is a side view of the improved lamp supported on the side of a building by a bracket-arm. Fig. 3 is a side elevation of the lamp partially broken away and in vertical section on the line 3 3 in Fig. 6 in the direction of the arrow 2. Fig. 4 is a sectional elevation of the upper portion of the lamp-chamber proper, taken on the line x x in Fig. 6, showing the wick-tube and lamp-extinguishing device therein, the latter being in elevated adjustment to permit of the lighting and burning of the wick. Fig. 5 is a sectional elevation of the same, taken in the same vertical plane as in Fig. 4, showing the extinguishing device in closed adjustment and the flame extinguished. Fig. 6 is a sectional plan view of the parts shown in Fig. 4, taken on the line 6 6 in said figure. Fig. 7 is a side elevation of the burner-extinguishing mechanism as seen from the exterior, viewed in the direction of the arrow 3 in Fig. 6, the parts being in open or elevated adjustment of the flame-deflector to permit the lighting of the wick. Fig. 8 is a partial side elevation of the upper portion of the wick-holding chamber, showing the extinguishing device approaching the position necessary for the automatic extinguishment of the lamp. Fig. 9 is a side elevation of the same, showing the extinguishing device in the act of automatically extinguishing the lamp. Fig. 10 is a sectional plan view taken on the line 10 10 in Fig. 3, and Fig. 11 is a detail partly sectional view of a portion of the wick-extinguishing device.

The oil-receptacle of the lamp, when designed for outdoor service, is preferably made in three sections or chambers A B C, which are of cylindrical or other suitable form. As shown in Fig. 3, these chambers are secured together laterally in the same vertical plane by tubular braces a a', which are of the same length, and by their attachment to the sides of the chambers hold the side chambers A and C properly removed from the central chamber.

Upon the upper portions of the oil-holding chambers A C conical top pieces A′ C′ are respectively secured, forming portions of said chambers, and upon the apex of each top the tubular columns A^2 C^2 are affixed, which latter are of equal height and sustain a light-reflector D. The central chamber B is comprised of two cylindrical portions, which are concentrically arranged, and the inner portion B′, that is made annular by the introduction of a central cylindrical air-conduit B^2 in its bottom wall a^2, is retained in position within the outer shell B by the oil-conveying branch pipes a^3, that intersect the oil-chamber B^2 and chambers A C, said branch pipes being preferably located within the tubular braces a, that are placed near the bottom of said chambers, as shown in Fig. 3. The space between the outer shell B and concentric inner oil-chamber B′ is sufficient for the free passage of air upwardly in the annular conduit b thus produced, the use of which will hereinafter appear.

The upper terminal edges of the walls forming the shell B, oil-chamber B′, and central air-tube B^2 are located nearly in the same horizontal plane with the bases of the conical tops A′ C′ of the chambers A and C, and are turned inward slightly to enable the ready attachment thereto of mating tubular extensions 1 2 3, which are of such a relative size, diametrically considered, that the extensions will closely fit upon the respective walls they are

adapted to engage when said parts are to be connected, and thus form removable portions of the same. (See Fig. 3.) The outer top piece 1, which has a sliding engagement with and is seated upon the upper end portion of the outer shell B, is contracted near its upper end portion, and at a proper point thereon a gallery E is formed on or secured to the outer surface for support of a lamp globe or chimney F, made of glass. (Shown broken away and in position on the gallery; see Fig. 3.) Above the lower edge of the globe F the upper portion of the tubular piece 1 is flared slightly, and within it a cylindrical perforated wall b' is secured by its upper edge nearly opposite the gallery E, the lower edge of said wall b' resting upon the incurved upper portion of the top piece 2, whereby an air-restraining vertical partition is produced that controls the upward flow of air through the annular channel or passage b.

A wick-tube of nearly continuous cylindrical form is produced by the wall 3 and larger tubular piece c, that is oppositely severed, the two equal sections thus produced being attached to the wall 3 by end walls c', thus producing two wick-passages of the same dimensions, wherein two flat wicks, when introduced, form a nearly continuous cylindrical wick, which is vertically adjusted by the usual wheels c^3 on the transverse shaft c^2. Within the upper portion of the tubular wall 3, that is an extension of the central air-tube B^2, a short cylindrical thimble d, that neatly fits the tube, is slid therein, the relative proportion in size being such that the thimble may be freely reciprocated in the piece it engages. Upon the exterior of the wick-tube, opposite the thimble d, an enveloping-cylindrical sleeve d' is connected to the thimble by the webs e, (see Fig. 6,) that are diametrically opposite each other and lie between the wick-tube sections, the lower edge of the sleeve resting normally upon the upper edge of the top piece 2 of the shell B.

Within the upper portion 3 of the air-tube B^2 a central guide-rod g is located, which is firmly supported in position by an engagement of its transverse foot-piece g' with the inner surface of the piece 3 near its lower end, said foot-piece resting on the upper edge of the air-tube B^2 when the parts are assembled, as shown in Fig. 3. Within the thimble d a foraminated shell g^2, of cylindrical form, is inserted, which fits loosely the upper edge of said shell, engaging a deflector-plate g^3, of circular contour and such a relative diameter as will permit its edge portion to coincide with the circumference of the sleeve d' when the plate and sleeve are brought together.

A filler-nozzle and screw-cap f is provided for the chamber A, and is located in the conical portion A', and the chambers A B C are furnished with depending flanges f' f^2 f^3, which protect the bottoms of the oil-receptacles, a series of perforations being formed in the flange f^2 on the shell B to admit air if the lamp is seated upon a solid base-plate or other similar support. Within the oil-chamber C a hollow float H is introduced, which is filled with air, and thus adapted to rest partly submerged upon the surface of the oil in the chamber, the relative dimensions being such that the float will slide in the chamber. Upon the float H a central standard H' is erected, which may be made cylindrical, but for convenience in manipulation is preferably given a square form in cross-section. At opposite points the conical wall C' is slotted horizontally to permit the edge portion of a disk or thumb-plate H^2 to project through said slots, which it loosely engages, so that a manipulation of the disk will effect a revoluble movement of the standard H', which passes loosely through a square aperture in the center of the thumb-plate. (See Figs. 3 and 10.)

A depending hollow limb g^4 is centrally secured to the lower surface of the deflector-plate g^3, and at its lower end is pivoted to the forked limbs of a lever i, that is loosely secured at its lower end to one end of a centrally-supported rocking bar i'. The other end of said bar i' has a pivoted connection with the main limb of the bifurcated lever i^2, the upper forked portions of which lever straddle the lever i and guide-rod g and are pivoted to the lower edge of the thimble d. The proportion of parts is such that when the rocking bar i' is inclined in one direction the deflector-plate g^3 will be elevated and the joined thimble d and sleeve d' moved in an opposite direction, so as to expose the upper ends of the wicks G, as shown in Fig. 4, an opposite inclination of the rocking bar throwing the concentric sleeve and thimble upwardly, so as to meet the descending deflector-plate g^3, as represented in Fig. 5.

Upon the side or top portion 1 of the shell B adjacent to the chamber C a gravity-block I is held loosely in the parallel upright guides k by its opposite edges, so that it may reciprocate vertically. The lower portion of the gravity-block I is transversely slotted near its center of width from the lower edge upwardly a proper distance, which slot m is loosely engaged by the end portion of a tripping-lever J, that is supported by the transverse shaft n, which is journaled at its ends loosely in the wall of the conical top C', as represented by dotted lines in Fig. 10. The vertical guides k are located at one side of a vertical plane which would pass through the axes of both chambers B' C to enable the tripping-lever J to enter the conical top C' and lie with its free end aligned with the plane of the axes of the chambers C and B'. The tripping-lever is bent laterally at n' and forwardly at n^2, entering a slot n^3 in the top piece C' and projecting toward the upright standard H'.

A series of evenly-spaced push-pins O are made to project from each face of the square standard H', the spaces between the pins on

one face differing in degree from those on another face for a purpose which will be explained.

In order to permit a free sliding movement of the standard H′ through the revoluble thumb-plate H^2 and afford clearance for the four series of push-pins O, the square hole in the thumb-plate is notched or slotted on each side radially a sufficient distance to clear the pins from contact with the plate. (See Fig. 10.)

As will be seen in Figs. 3 and 10, the shaft n is located near the end n^4 of the lever J, and upon said shaft a latch-dog p is loosely clipped by its forked limbs, so that the free end portion of the dog which projects toward the standard H′ in the path of the push-pins O will be engaged by the lever end n^4 and prevented from falling, being held extended thereby as a portion of the lever, while an upward movement will be permitted if the end of the dog that is in the path of the pins is pressed upon from below by an upward movement of the standard H′ and series of pins on it.

As represented in Fig. 11, the connection between the end of the tripping-lever J and the slotted portion of the gravity-block I is effected by a rocking bail r, which is loosely journaled where it is bent at its middle in the perforated body of the lever near the end r' of said lever, the upwardly-extending limbs of the rocking bail having their laterally-bent end portions r^2 inserted in opposite perforations in the walls of the slot m, whereby the vertical vibration of the lever J is permitted and a guiding connection established between the end of the lever and the gravity-block I. Upon the side face of the gravity-block I a peculiarly-shaped locking-plate I′ is pivoted at one upper corner s, which is nearest to the axial plane of the oil-chambers B′ C, and directly below the pivot at s the side of the plate is cut away inwardly to a point s' sufficiently removed from the pivot, and thence downwardly and outwardly to the corner s^2 of the plate I′ directly below the corner s.

Referring, again, to the rocking bar i', it will be seen that said bar is secured at its center of length upon the end portion of a horizontal rock-shaft u, which latter projects through aligning perforations in the walls 1 2 3 of the movable tops on the shell B, oil-chamber B′, and center tube B^2, which afford a loose support for the shaft, as shown in Fig. 3. Upon the end of the rock-shaft u which is nearest to the gravity-block I a crank-arm u' is secured, which projects at a right angle from the shaft toward the edge of the gravity-block and is of such a proportionate length that the free end of the crank-arm, which is rounded on the edge, will be adapted to lie below the pivot s of the locking-plate I′ and nearly have contact with the curved edge of the plate at its portion s', this position of parts being effected when the gravity-block I is at its lowest point of adjustment, as shown in Fig. 7, the inner end of the latch-dog p being fully elevated and the extinguishing mechanism for the wicks G in open adjustment, which will permit the necessary combustion of oil for purposes of illumination.

In operation, the oil-chambers having been supplied with a proper quantity of oil of any suitable quality, the consequent elevation of the float H and standard H′ will cause the latter to move up into the column C^2, as shown in Fig. 3. The spaced intervals between the four series of push-pins O being different, represent different periods of time which will elapse between the engagement of consecutive pins of a series with the free end of the latch-dog p as oil is gradually consumed at the point of ignition of the wicks G.

It is evident from the foregoing description that if the several parts of the burner mechanism and extinguishing device be in adjustment, as shown by full lines in Figs. 3 and 7, that the consumption of oil will cause the float H to gradually fall, which will rock the end r' of the lever J upwardly, thus elevating the gravity-block I. When the consumption of oil has progressed such a length of time as will lower the engaged push-pin O to a point of release, as shown by dotted lines in Fig. 3, the block I will then have been raised and the locking-plate I′ rocked on its pivot a sufficient distance to permit the crank-arm u' to release the plate and the corner s^2 of the plate to swing above the arm at the same instant that the lever J is completely depressed at its end nearest the standard H′.

In Fig. 8 the adjustment of parts represents the position of the gravity-block I and locking-plate I′ just before the rocking movement of the latter piece is fully effected, and in Fig. 9 the locking-plate is shown as having swung over the arm u' and by the imposed weight of the gravity-block I, plate I′, and long arm of the released tripping-lever J partly depressed the crank-arm, which when fully accomplished will throw the extinguishing mechanism into closed adjustment, as represented in Fig. 5.

The distance between the pins O of one series may represent an interval of, say, three hours' burning before extinguishment of the light, another series may be for a period of five hours, another for seven hours, and the remaining series for ten or twelve hours, or any other preferred time-graduations may be represented on these pin-racks between the successive pins composing each one. Consequently it is only necessary to move the standard H′ so as to locate the proper series in the plane of the latch-dog p and adjacent to it, when the lighting of the lamp will be all that is necessary to cause its own extinguishment at the expiration of the interval of time represented by the space between the pins of the engaged series.

In Figs. 1 and 2 the complete lamp for outdoor illumination is shown mounted upon a post M or bracket-arm O′, there being a three-

limbed bracket N provided, which is adapted to clasp the lower ends of the oil-chambers A B C and retain the lamp in a vertical position on the post or bracket-arm.

As previously mentioned, the columns A^2 C^2 are engaged at their upper ends with a light-reflector D, which is centrally apertured and provided with a vertically-movable smoke-flue D′, on the top of which the hood D^2 is secured, the lower end of the flue being made to fit over the upper end portion of the globe F, so that protection is afforded to the flame of the lamp-burner and proper ventilation secured. The air-passages upon the inside and outside of the wicks G insure a full supply of oxygen to the ignited wicks, so that brilliant illumination will result if good oil is used in the lamp.

By a slight modification of form in the oil-chambers and supports therefor the self-extinguishing devices may be applied to indoor uses for stationary, pendent, or portable lamps. Hence I do not limit the application of the improved automatic extinguishing device to the form of oil-chambers herein shown, claiming the right to vary therefrom within the manifest spirit and scope of my invention.

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

1. The combination, in a lamp, with the wick-tube and an extinguishing device, of a float and a standard having a series of projections adapted to bring into action the extinguishing device at intervals of time as the float descends from the combustion of the oil, substantially as described.

2. The combination, in a lamp having a wick-tube and an extinguishing device, of a float and a standard connected with the float and having two or more ranges of projections at different distances apart and adapted to bring into action the extinguishing devices at different periods of time, the standard being movable, so as to bring into action on the extinguishing device either of the ranges of projections, substantially as described.

3. The combination, in a lamp having a wick-tube and an extinguishing device, of a float and a standard connected with the float and having two or more ranges of projections at different distances apart and adapted to bring into action the extinguishing devices at different periods of time, the standard being movable, so as to bring into action on the extinguishing device either of the ranges of projections, and a revoluble support for the standard, substantially as described.

4. The combination, with an oil-receptacle having a series of connected oil-chambers, a cylindrical wick-tube in one oil-chamber having a central interior air-passage leading from below and a concentric exterior air-passage, and a wick in the tube, of an enveloping sleeve and inner thimble adapted to slide above the wick-tube, a deflector-plate adapted to slide downwardly and engage the sleeve and thimble, and mechanism for actuating the deflector-plate, sleeve, and thimble to extinguish the wick at a predetermined time, substantially as set forth.

5. In a lamp having a cylindrical wick-tube, a wick-extinguishing device comprising a sliding sleeve and an attached thimble engaging the sides of the tube, a vertically-adjustable deflector-plate, and mechanism adapted to slide the joined sleeve, thimble, and deflector-plate toward or from each other simultaneously, substantially as set forth.

6. In a lamp, the combination, with a central annular oil-chamber having inner and outer vertical air-passages, a wick-tube in the chamber forming the interior air-passage, an outer shell, and top pieces adapted to fit and seat upon the shell, oil-chamber wall, and center tube, of a sleeve and a concentric thimble attached to each other and adapted to slide on the wick-tube, a vertically-movable deflector-plate, and mechanism adapted to move the sleeve and thimble up and the deflector-plate down at the same time, substantially as set forth.

7. In a lamp, the combination, with a cylindrical wick-tube having two concentric walls at its upper end, of an enveloping sleeve on the tube, an interior thimble connected to the sleeve, a central guide-rod in the wick-tube, a deflector-plate having a depending perforated shell vertically movable in the thimble, and a device connected to the thimble and sleeve and adapted to move the thimble and sleeve toward or away from the deflector-plate, substantially as set forth.

8. In a lamp, the combination, with an oil-receptacle comprising three cylindrical chambers joined to feed oil to the central chamber, a cylindrical wick-tube in the central oil-chamber provided with a wick, a connected sleeve and thimble on the wick-tube, a deflector-plate having a depending perforated shell entering the thimble, and a central guide-rod for the deflector-plate, of a float in one oil-chamber, a square standard on the float, a series of push-pins on each side of the standard, equally spaced in each series and differently spaced in separate series, and a gravity-actuated mechanism connected to the extinguishing device and the float and adapted to actuate said extinguisher when moved by the float, substantially as set forth.

9. In an extinguishing device for lamps, the combination, with a shell, an interior concentric oil-chamber, a central wick-tube in the oil-chamber, and movable top pieces for the shell, oil-chamber, and wick-tube, of a sleeve and thimble connected together and adapted to slide on the inner and outer sides of the wick-tube, a deflector-plate above the wick-tube, a stationary guide-rod in the wick-tube, a horizontal rock-shaft, a rocking bar on the end of the shaft, a forked lever pivoted to one end of the rocking bar and jointed to the thimble, a bifurcated lever pivoted to

the other end of the rocking bar and also to the deflector-plate, and a gravity-block adapted to rock the shaft and move the deflector-plate and thimble and sleeve, substantially as set forth.

10. In a self-extinguishing lamp, the combination, with the wick-tube, a sleeve and thimble enveloping the tube, a deflector-plate, and mechanism for operating the deflector-plate and tube-inclosing device simultaneously toward or from each other, of a hollow float in the oil-chamber of the lamp, a standard thereon, a thumb-piece on the standard, series of pins on the sides of the standard, spaced to represent intervals of time, a rocking tripping-bar, and a gravity-block loosely secured to one end of the tripping-bar and adapted to be elevated when the lever is rocked by the depression of the float, substantially as set forth.

11. In a lamp-extinguishing device, the combination, with a revoluble float in the oil-chamber which feeds the wick, a standard on the float, and pins arranged in series on the sides of the standard, each series representing different intervals of time between the pins, of a tripping-lever pivoted on said oil-chamber, a gravity-block supported to slide vertically on an adjacent wall of the chamber, a pivoted locking-plate on the gravity-block, a rock-shaft, a crank-arm on the end of the rock-shaft near the locking-plate, a rocking bar on the other end of the rock-shaft, and a connected thimble and sleeve and a deflector-plate adapted to slide toward each other and extinguish the lamp when actuated by the gravity-block, substantially as set forth.

CHARLES H. VAN HISE.

Witnesses:
WM. P. PATTON,
EDGAR TATE.