

No. 759,037.

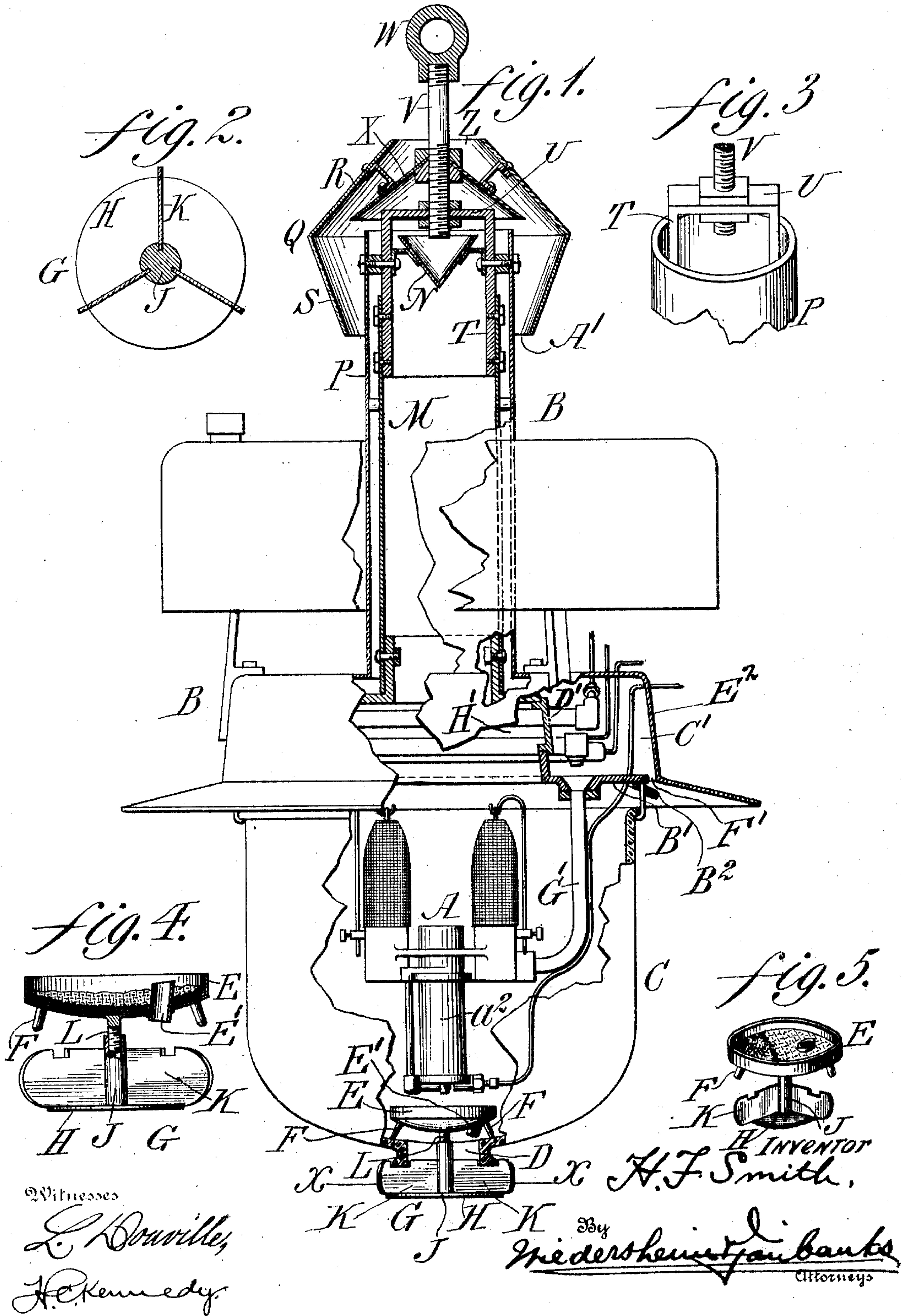
PATENTED MAY 3, 1904.

H. F. SMITH.
LAMP.

APPLICATION FILED SEPT. 10, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 6.

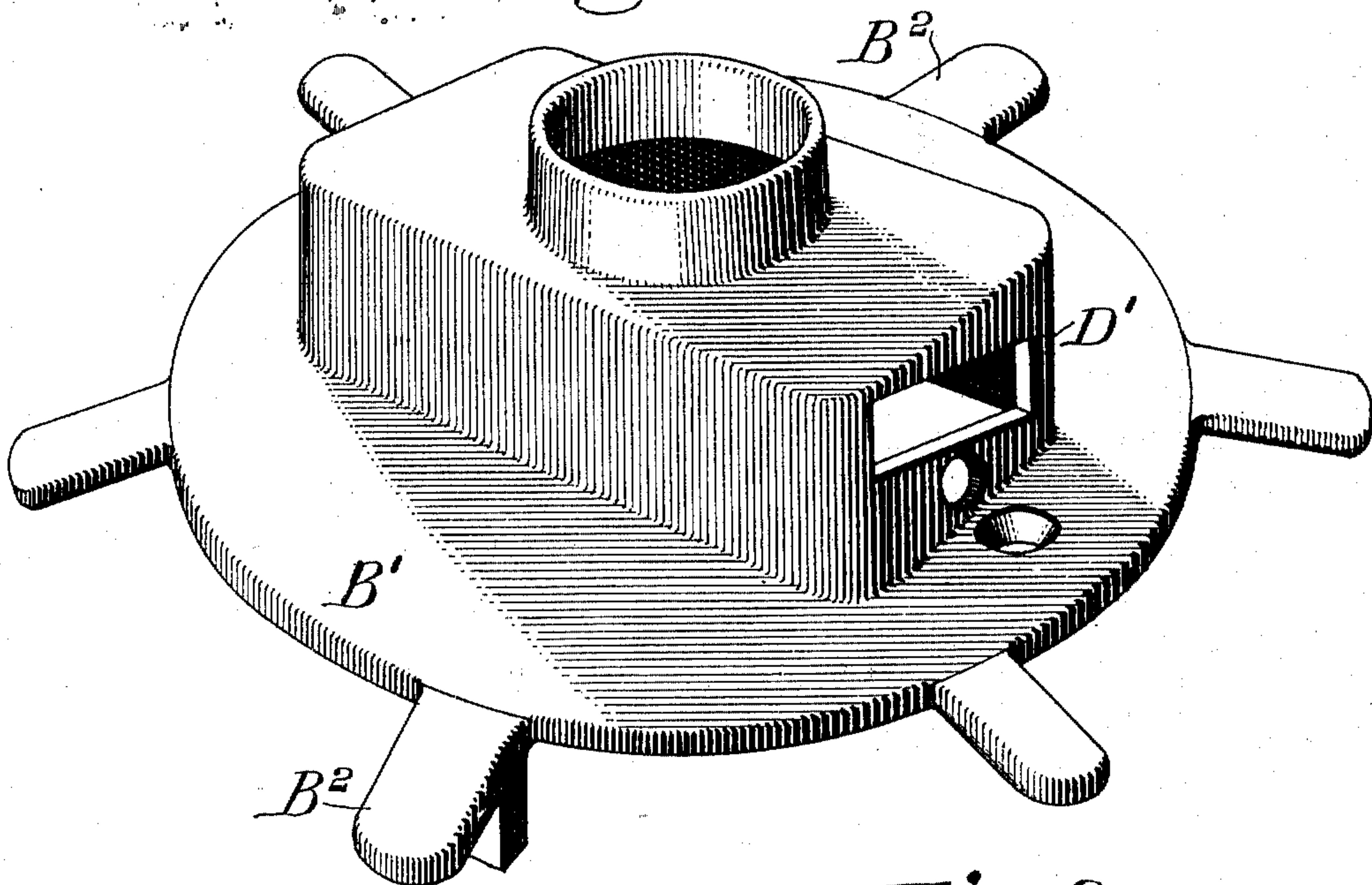


Fig. 8.

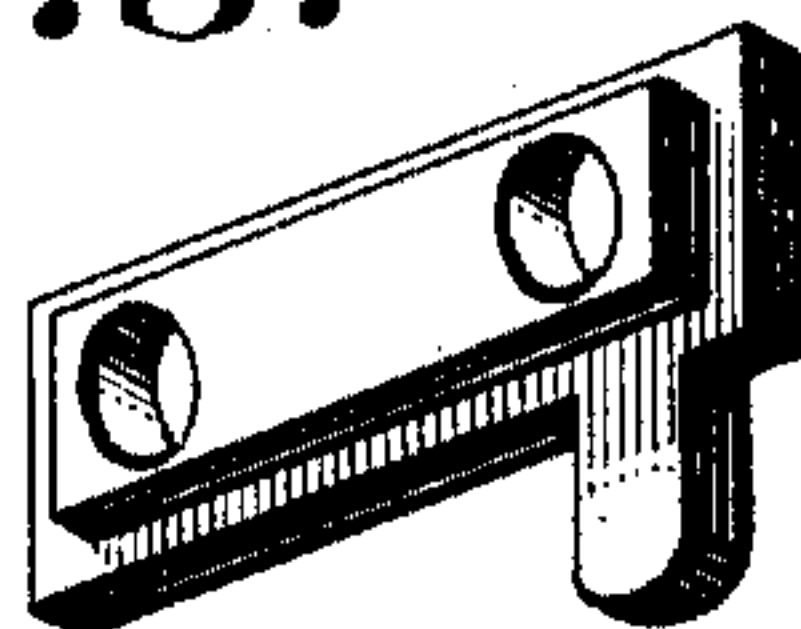
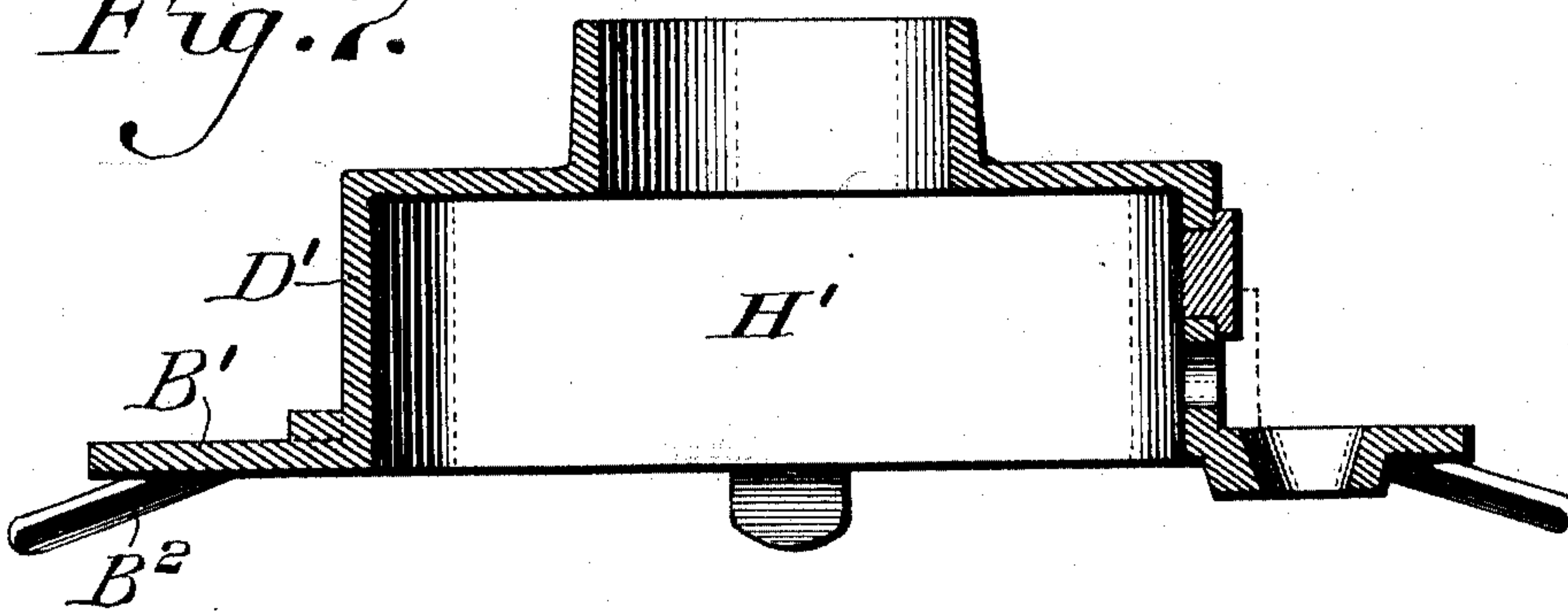


Fig. 7.



Witnesses

O. F. Bagley.
L. Douville.

Inventor

H. F. Smith.

By

Frederick J. Gault
Attorneys

UNITED STATES PATENT OFFICE.

HARPER F. SMITH, OF PHILADELPHIA, PENNSYLVANIA.

LAMP.

REISSUED

SPECIFICATION forming part of Letters Patent No. 759,037, dated May 3, 1904.

Original application filed April 20, 1903, Serial No. 154,970. Divided and this application filed September 10, 1903. Serial No. 172,704. (No model.)

To all whom it may concern:

Be it known that I, HARPER F. SMITH, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Lamps, of which the following is a specification.

My invention consists of a novel construction of a lamp, having for its object to provide means to regulate the supply of air to the bottom of the lamp in an effective and novel manner and also to prevent improper and injurious drafts from entering the hot-air chamber from the top of the lamp.

It further consists of a novel ignition-cup.

It further consists of means for providing a supply of fresh air above the lamp-globe.

It further consists of features of construction hereinafter fully described and claimed.

Figure 1 represents a partial central vertical section and partial elevation of a lamp constructed in accordance with my invention. Fig. 2 represents a transverse section taken on the line *xx* of Fig. 1. Fig. 3 represents a perspective view of an upper detached portion of a lamp, showing the supporting device therefor. Fig. 4 represents a partial vertical section and partial elevation of a lower portion of my lamp detached. Fig. 5 represents in perspective the same portion. Figs. 6 and 7 represent in perspective and vertical section, respectively, the heating-chamber of my device detached. Fig. 8 represents the closure for said chamber.

For the purpose of illustrating my invention I have shown my lamp adapted specially for burning a hydrocarbon vapor; but as my invention relates to the construction of the means for controlling a supply of air and preventing injurious draft and for lighting the lamp the features of construction relating to the burner proper are not illustrated in detail nor will be described, as this application is a division of my application for a vapor-burner, filed April 20, 1903, Serial No. 154,970.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates the burner proper, having an axially-disposed pre-

heating or starting device A², and B the frame of the lamp, provided with a globe C, which is suitably supported and which has an opening D in its lower portion. Above this opening and beneath the starting device A² is located a cup E, which rests upon the feet F.

G designates a deflecting device composed of a base portion H, an upright stem J, and vertical blades K, the office of said deflecting device being to deflect air up into the globe C, which air plays a dual part—first, as a fresh-air supply for burner consumption, and, second, to equalize any back pressure that might occur within the apparatus.

It will be understood that the inner deflector or cup E and the outer deflector G are held in engagement by a threaded stem L; but as the connection or union of these two parts may be accomplished by various other means I do not deem it necessary to describe this construction in detail.

As shown, the disk or cup E is of greater diameter than the opening D of the lamp-globe, so that any air entering thereat is deflected toward the sides of the globe C. In this way the glass is kept cool and the mantles protected from air-currents.

Within the cup E is a layer of asbestos fiber or other absorbent material, shown as held in place by a disk of wire-gauze or the like. A short tube E' passes up through the bottom of the cup E. When the lamp is to be lighted, a portion of the hydrocarbon is permitted to overflow into the cup E, is absorbed by the fibrous material therein, and immediately vaporizes. The flame from a match held below the ignition-tube E' lights this vapor, so that the lamp may be started without a torch and without the tedious waiting usually necessary.

The products of combustion from the burner A pass upwardly and into the hot-air cylinder M and impinge against the inverted cone N, whereby the products of combustion are deflected over the top of the outer case or weather-cylinder P against the walls of the weather-hood Q, which latter is composed of the angularly-disposed upper and lower cone-frusta R and S, united at their bases. The

upper portion of the hot-air cylinder M has secured thereto the inverted-U or other shaped brace T, whose top portion U is secured to the threaded stem V, having an eye W thereon, whereby the lamp may be conveniently supported. In the present instance I have shown the inverted cone N as supported from the brace T, and I have shown the cone X as supported from the stem V, while the weather-hood Q is supported from said cone X.

It will thus be understood from the foregoing that the inverted cone N uniformly directs the products of combustion around and out of the hot-air cylinder M. The hood Q is provided with an opening Z at its top and an annular opening A' at its bottom, which latter surrounds the outside or weather cylinder P. It will also be seen that the angle formed by the junction of the inclined sides R and S cuts the air and deflects the same either upwardly or downwardly, so that there can be no improper or injurious drafts within the hot-air cylinder, since said air must pass above the top of the opening Z and below the bottom of the opening A', it being also apparent that the cone X by reason of its location below the upper opening Z also assists to prevent any improper or injurious drafts in the hot-air chamber. It will also be apparent by reason of my novel construction if the lamp should be suspended close to a wall where the air would be deflected downwardly upon the hood Q in case any air should pass into the upper opening Z it would flow over the cone X and out at the bottom opening A'.

In some forms of construction I find it advantageous to so proportion the cone frusta R and S that the area of the annular opening A' shall approximately equal that of the top opening Z and to place the bases of the frusta substantially in the plane of the exit-opening beneath the deflecting-cap X. When a wind of considerable force is blowing, a portion of the annular lower opening will be shielded by the cylinder P, so that the opening Z will be able to carry off the products of combustion, as well as all the air driven into the hood at A'. If the wind is deflected downward into the opening Z, it will be prevented by the cone X from passing down the cylinder M and will pass out at the leeward side of the opening A' without interfering with combustion.

I have shown the base B' of the fresh-air chamber C' as an annular plate integral with the inner wall D' of the chamber. The plate B' is of an exterior diameter somewhat less than the interior diameter of the casing E² of such chamber, thereby providing an annular opening F' for the admission of air, and has ears B² extending under said casing.

A portion of the air entering at this opening passes down the mixing-tube G' to the burners, the remainder passing through the fresh-air chamber C' and upward through the

annular space between the hot-air cylinder M and the outer or weather cylinder P.

Within the wall D' is the hot-air chamber H', located above the burners A and communicating with the hot-air cylinder M.

It is clear that the heated cylinder M will cause a strong upward draft in the surrounding cylinder P. This will be assisted by the radiant heat from the wall D' of the hot-air chamber H'. By these means an ample supply of fresh air is secured both for the mixing-tube G' and for cooling the outer portions of the lamp.

It will be seen that two upward currents are created and discharged into the hood Q. One of these enters the inlet at the bottom of the globe and passes therethrough and through the hot-air chamber H' and the inner cylinder M. The other enters through the annular opening F' and except the portion which is used to mix with the vapor of the lamp passes through the chamber C' and the annular space within the cylinder P.

It is evident that by properly proportioning the area of these two inlets and the outlet of the hood Q any desired draft and volume of air both for combustion and to prevent overheating may be obtained. It is also evident that various changes may be made by those skilled in the art which will come within the scope of my invention, and I do not, therefore, desire to be limited in every instance to the exact construction herein shown and described.

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

1. In a lamp, a deflecting device consisting of a disk adapted to be attached to the bottom of the lamp-globe, a series of vertical blades intermediate said disk and globe, and a cup supported within said globe, said blades and disk being suitably suspended below said cup and globe.

2. In a lamp, a deflecting device adapted to be attached to the globe thereof and consisting of a disk having a series of vertical blades intermediate it and the bottom of said globe, and a cup supported within said globe, said blades and disk being attached to said cup by connecting device common thereto.

3. In a lamp, a lamp-globe, a disk adapted to be attached thereto and having a series of vertical blades intermediate it and the bottom of said globe, a cup supported within the globe, a hot-air cylinder above said disk, said blades directing the air from below the globe upwardly against said cup, which latter uniformly distributes the same within said globe and directs it upwardly through said hot-air cylinder.

4. In a lamp, a deflecting device adapted to be applied to a lamp-globe having a bottom opening comprising a disk and a plurality of blades exterior of said globe and a deflecting-

disk within said globe and of a diameter greater than that of such bottom opening.

5. In a lamp, a deflecting device adapted to be applied to a lamp-globe having a bottom opening, comprising a disk and a plurality of blades exterior of said globe and a deflecting-disk within said globe, both of said disks being of a diameter greater than that of such bottom opening.

6. In a lamp, an igniting device adapted to be applied to a lamp-globe having a bottom opening, comprising a cup within said globe and adjacent said opening and means for the access of a flame for igniting a fluid held in said cup.

7. In a lamp, a deflecting device adapted to be applied to a lamp-globe having a bottom opening comprising a disk and a plurality of blades exterior of said globe and a deflecting-cup within said globe and of a diameter greater than that of such opening and having an ignition-tube extending therethrough.

8. In a lamp adapted to support a globe having a bottom opening, a burner, a starting device and an igniting device comprising a cup located within such globe and beneath said starting device and means for the access of a flame for igniting a fluid held in said cup.

9. In a lamp adapted to support a globe having a bottom opening, a burner, a starting device and a deflecting device comprising a disk and a plurality of blades exterior of said globe, a deflecting-cup within such globe and beneath said starting device and an ignition-tube in said cup.

10. In a lamp, a hot-air cylinder for carrying off the products of combustion, an inverted conical deflector adjacent the top of said cylinder, a cap above said cylinder and a weather-hood open at its upper and lower ends and surrounding the top of said cylinder and said cap.

11. In a lamp, a hot-air cylinder, a weather-casing annularly spaced away from said cylinder, a brace secured to the upper end of said cylinder, a supporting device secured to said brace, an inverted conical deflector adjacent the top of said cylinder and secured to said brace, a cap covering said cylinder and a weather-hood having top and bottom openings surrounding said cap and the upper end of said cylinder.

12. In a lamp, a hot-air cylinder for carrying off the products of combustion, an inverted conical deflector adjacent the upper end of said cylinder, a hood inclosing the upper end of said cylinder and consisting of two cone frusta united at their bases, and a conical cap within and separated from said hood and of a diameter greater than that of the top of said cylinder.

13. In a lamp, a hot-air cylinder for carrying off the products of combustion, an inverted conical deflector adjacent the top of said cylinder, an inverted cap above and of substantially

greater diameter than said cylinder and a weather-hood open at its upper and lower ends surrounding the upper end of said cylinder and said cap, the greatest diameter of said hood being substantially in the plane of the exit-opening beneath said cap.

14. In a lamp, a hot-air cylinder, a weather-casing surrounding said hot-air cylinder, an inverted conical deflector adjacent the top of said hot-air cylinder, a cap covering said deflector, said cylinder and said casing, and a weather-hood open at its upper and lower ends surrounding the upper ends of said cylinder and said casing and said cap.

15. In a lamp, a hot-air cylinder, a weather-casing surrounding said hot-air cylinder, an inverted conical deflector adjacent the top of said hot-air cylinder, a cap covering said deflector and said cylinder and said casing, and a weather-hood consisting of two cone frusta united at their bases surrounding the upper ends of said cylinder and said casing and said cap.

16. In a lamp, a burner, a hot-air chamber above said burner, a hot-air cylinder connected with said hot-air chamber, a fresh-air chamber surrounding said hot-air chamber, a second cylinder surrounding said hot-air cylinder and communicating with said fresh-air chamber and means for the admission of air to both said chambers.

17. In a lamp, a burner, a hot-air chamber above said burner, a hot-air cylinder connected with said hot-air chamber, a fresh-air chamber surrounding said hot-air chamber, a second cylinder surrounding said hot-air cylinder and communicating with said fresh-air chamber and an annular plate of less diameter than the outer wall of said fresh-air chamber and forming the base thereof, whereby an annular opening is provided for the admission of air to said fresh-air chamber.

18. In a vapor-lamp, a burner, a hot-air chamber above said burner, a hot-air cylinder connected with said hot-air chamber, a fresh-air chamber surrounding said hot-air chamber, a second cylinder surrounding said hot-air cylinder and communicating with said fresh-air chamber, means for the admission of air to both said chambers, and a mixing-tube for conveying air from said fresh-air chamber to said burner.

19. In a vapor-lamp, a burner, a hot-air chamber above said burner, a hot-air cylinder connected with said hot-air chamber, a fresh-air chamber surrounding said hot-air chamber, a second cylinder surrounding said hot-air cylinder and communicating with said fresh-air chamber, an annular plate of less diameter than the outer wall of said fresh-air chamber and forming the base thereof whereby an annular opening is provided for the admission of air to said fresh-air chamber and a mixing-tube for conveying air from said fresh-air chamber to said burner.

20. In a lamp, a burner, a hot-air chamber above said burner, a hot-air cylinder connected with said hot-air chamber, a fresh-air chamber surrounding said hot-air chamber, a second cylinder surrounding said hot-air cylinder and communicating with said fresh-air chamber, means for the admission of air to both said chambers and a hood surrounding and extending above the upper end of both said cylinders.

21. In a lamp, a burner, a hot-air chamber above said burner, a hot-air cylinder connected with said hot-air chamber, a fresh-air chamber surrounding said hot-air chamber, a second cylinder surrounding said hot-air cylinder and communicating with said fresh-air chamber, means for the admission of air to both said chambers and a lamp-supporting device attached to the upper end of said cylinders.

22. In a lamp, a burner, a hot-air chamber above said burner, a hot-air cylinder connected with said hot-air chamber, a fresh-air chamber surrounding said hot-air chamber, a second cylinder surrounding said hot-air cylinder and communicating with said fresh-air chamber, an annular plate forming the base of said fresh-air chamber and of less diameter than the outer wall thereof, a wall between said chambers integral with said plate and means for the admission of air to both said chambers.

23. In a lamp, in combination with a globe having a bottom opening, means exterior of

said opening for directing lateral air-currents upwardly therethrough.

24. In a lamp, in combination with a globe having a bottom opening, means exterior of said opening for directing lateral air-currents upwardly therethrough and means within said globe for laterally deflecting such entering currents.

25. In a lamp, a deflecting device adapted to be applied to a lamp-globe having a bottom opening comprising a plurality of radially-extending blades.

26. In a lamp, a deflecting device adapted to be applied to a lamp-globe having a bottom opening comprising a plurality of radially-extending blades arranged beneath said opening and means beneath said blades for preventing the direct ascent of an air-current into said globe.

27. In a lamp, a burner, a hot-air cylinder, a hot-air chamber above said burner and connected with said cylinder, a fresh-air chamber surrounding said hot-air chamber, a hot-air cylinder connected with said hot-air chamber, the top wall of said hot-air chamber, the bottom wall of said fresh-air chamber and the wall common to said chambers being integral.

HARPER F. SMITH.

Witnesses:

GEO. L. COOPER,

THOMAS A. KERNEY.