

N. L. SMITH.

MEANS FOR AUTOMATICALLY LIGHTING GAS LAMPS.

No. 306,652.

Patented Oct. 14, 1884.

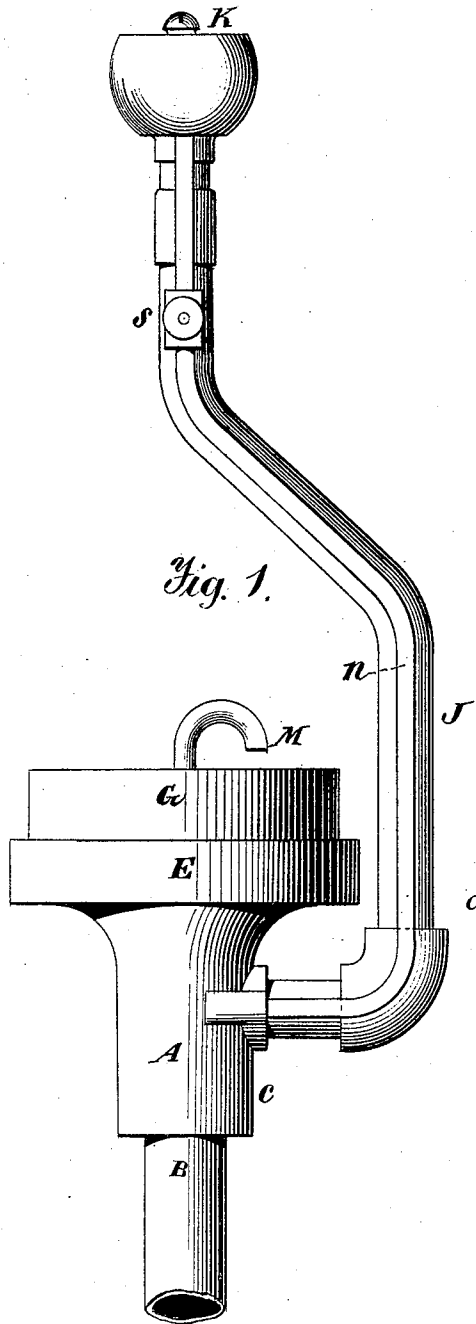


Fig. 1.

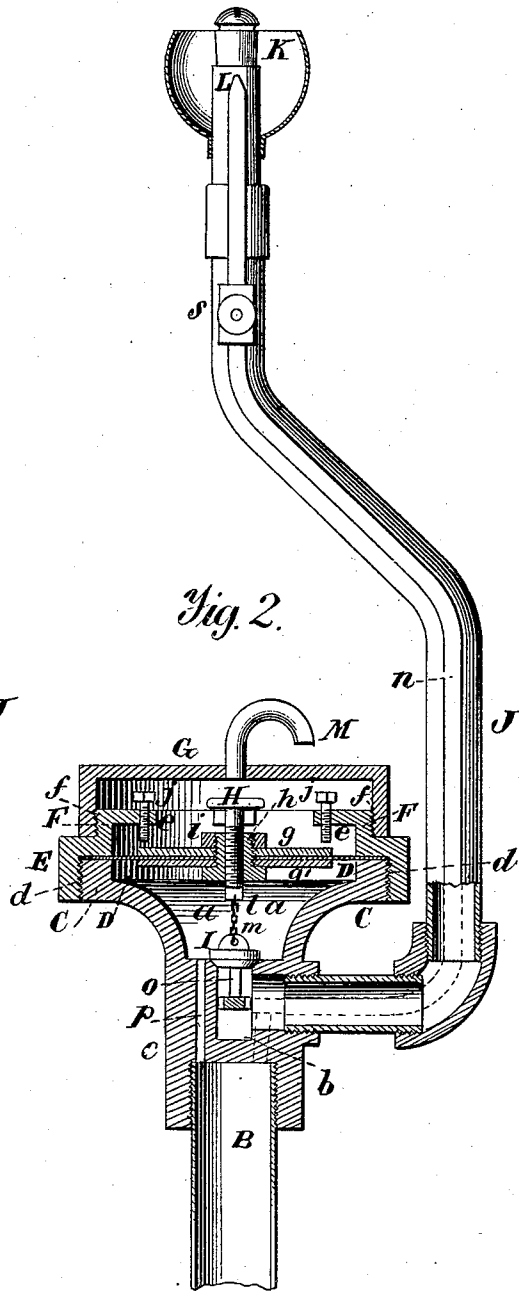


Fig. 2.

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Fig. 7.

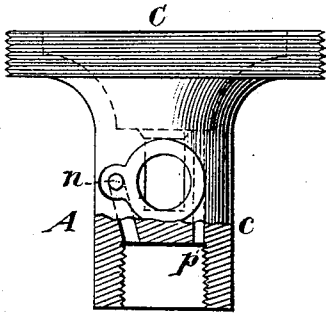


Fig. 8.

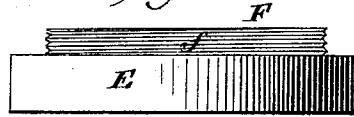


Fig. 4.

Fig. 3.

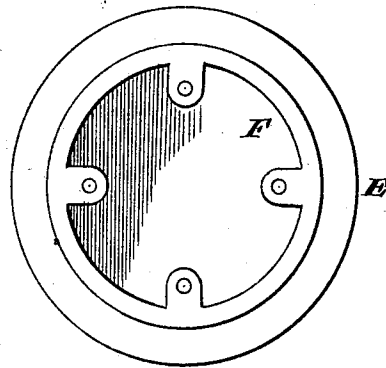
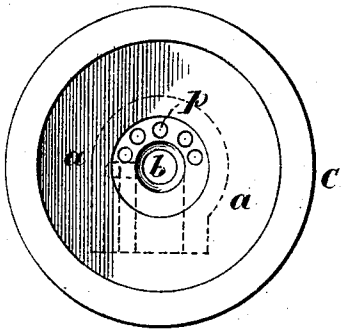


Fig. 5.



Fig. 6.



Witnesses:
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UNITED STATES PATENT OFFICE.

NORRIE L. SMITH, OF NEW HAVEN, CONNECTICUT.

MEANS FOR AUTOMATICALLY LIGHTING GAS-LAMPS.

SPECIFICATION forming part of Letters Patent No. 306,652, dated October 14, 1884.

Application filed December 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, NORRIE L. SMITH, of New Haven, in the county of New Haven and State of Connecticut, have invented certain
5 Improvements in Means for Automatically Lighting Gas-Lamps, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

10 My invention has reference to a device for automatically lighting street and other lamps, used in connection with a general system of gas-distribution; and the said invention consists of the improved construction hereinafter
15 described and set forth.

In the accompanying drawings, forming part of the specification, Figure 1 represents a side elevation of a device embodying my improvements. Fig. 2 is a central vertical section of the same; Figs. 3 and 4, plan views of detached
20 parts; and Figs. 5 and 6 are detailed views. Figs. 7 and 8 are side views of the parts illustrated by Figs. 3 and 4.

A represents a chambered head, which has
25 an opening at its lower end, with which communicates the gas-supply pipe B. The upper portion, C, of said head A is enlarged, as shown in Figs. 1 and 2, and is cored out to form a chamber, *a*, which communicates with a
30 smaller vertical chamber, *b*, formed in the vertical portion *c* of the said head, above the end of the gas-supply pipe B. A circular flexible disk or diaphragm, D, rests upon the upper face of the portion C of the head A, and is
35 clamped in position upon said head by a circular case, E, interiorly threaded at *d*, to engage threads on the outer side of the portion C of the head A, to insure the retention of said case E upon said portion C. The said case E
40 is provided upon its upper face with an annular extension, F, which is provided integrally on its inner face with a series of lugs or ears, *e*, located equidistant from each other. The annular extension F is exteriorly threaded at
45 *f*, to engage an interiorly-threaded cap, G, which covers the diaphragm. Circular plates *g g'*, of smaller diameter than the diaphragm D, are arranged centrally in contact therewith, respectively above and below the same, and
50 are retained in position by means of a thimble, *h*, which passes through a perforation there-

for in both of said plates *g g'* and said diaphragm D, and is threaded on its upper end to engage a clamp-nut, *i*. A threaded thumb-screw, *j*, passes through a threaded opening
55 therefor in each of the lugs *e*; and serves to regulate the vertical movement of the diaphragm D. A threaded bolt, H, passes through the thimble, and is retained in its proper position within said thimble by the
60 threads thereof engaging corresponding threads in the thimble-opening. The lower end of the bolt H projects for a considerable distance below the diaphragm D, and is perforated at its lower extremity, *l*, for the attach-
65 ment of one end of a chain or link, *m*, to the other end of which is suspended a valve, I.

From a branch opening located in the side of the head A extends the burner-pipe J, the upper end of which carries the main burner.
70 The said main burner-pipe J communicates with the chamber *b*. An auxiliary burner, L, is supplied through a smaller pipe, *n*, which runs parallel with the pipe J, and communicates directly with the gas-supply pipe B. An
75 extension or guide, *o*, depends from the under side of the valve I down into the chamber *b*, and insures the proper return of said valve I to its seat. A series of openings, *p*, concentric with the chamber *b*, permit communica-
80 tion between the main gas-supply pipe B and the cored-out chamber *a* of the head A around the valve I. A vent or pipe, M, located in the upper face of the cap G, permits the movement of the diaphragm without compressing
85 the air above the same.

In ordinary street systems of gas-supply the gasflows at a low pressure during the day, which low-pressure fluid passes from the main supply-
90 pipe B through the pipe *n* to the auxiliary burner L, which is always kept burning, and which gives a very small flame. Now, when at night-time the pressure is increased, the gas, passing through the openings P, exerts a violent force upon the diaphragm, and the valve
95 I is lifted from its seat, the high-pressure fluid passing to the chamber *b* through the pipe J to the main burner K, which is immediately ignited in consequence of the proximity of the auxiliary burner L. By adjusting the screws
100 *j* the vertical movement of the diaphragm is controlled, and the consequent supply of high-

pressure fluid to the main burner regulated. A cock, *s*, controls the auxiliary gas-supply of the auxiliary burner.

Having described my invention, I claim—

5 1. The combination, in an automatic gas-lighting apparatus, of a main burner, an auxiliary burner, a continuous communication therefor with the gas-supply pipe, a communication for the main burner with the gas-supply,
10 a valve controlling the flow of gas through the communication of the main burner, a diaphragm secured peripherally above said valve and connected thereto, a direct passage from the main supply to the space below said diaphragm, and a thumb screw or screws bearing
15 in the casing independent of said valve and diaphragm, and adapted to limit the movement of the diaphragm, substantially as set forth.

20 2. The combination, in an automatic gas-lighting apparatus, of a main burner, an auxiliary burner, a valve controlling the supply of gas to the main burner, a disk or diaphragm connected to the main valve and secured in
25 position by means of a cap or case adjustably secured on the disk-seat, and an air vent or pipe connected to the case or cap, to establish a communication between the atmosphere and the space above said disk or diaphragm and
30 permit the expulsion or admission of air under the movements of the same, substantially as set forth.

35 3. The combination, in an automatic gas-lighting apparatus, of a main burner, an auxiliary burner, a chambered head connected to said main and auxiliary burner, a gas-supply pipe communicating with the chamber of said head, a diaphragm or disk covering the chamber of said head and retained thereon by a
40 case provided with devices for limiting the

movement of the diaphragm, adapted to receive a threaded cap, substantially as herein described.

4. The combination, in an automatic gas-lighting apparatus, of a main burner, a valve
45 controlling the supply of gas to said main burner, a diaphragm adapted to be operated as described, a threaded perforation therein, and a threaded bolt vertically adjustable in said diaphragm connected to said valve, sub-
50 stantially as set forth.

5. The combination, in an automatic gas-lighting apparatus, of a main burner, a valve controlling the supply of gas to said main burner, a diaphragm adapted to be operated as
55 described, a plate arranged above and below said diaphragm, and perforated to register with a perforation in said diaphragm, an interiorly-threaded thimble passing through said perforation, and a bolt passing through the
60 threaded perforation of the thimble, vertically adjustable therein and connected to the said valve, substantially as set forth.

6. The combination, in an automatic gas-lighting apparatus, of a main burner, an auxiliary burner, a valve controlling the gas-supply to the main burner, a diaphragm connected to said valve, a case or ring clamping
65 said diaphragm in position, and provided with a series of perforated lugs or ears supporting set-screws for limiting the movement of the
70 diaphragm, substantially as set forth.

In testimony whereof I have hereunto set my hand and seal this 10th day of December, A. D. 1883.

NORRIE L. SMITH.

Witnesses:

PHILLIP GOODHURT,
M. S. WADHAM.