

No. 686,035.

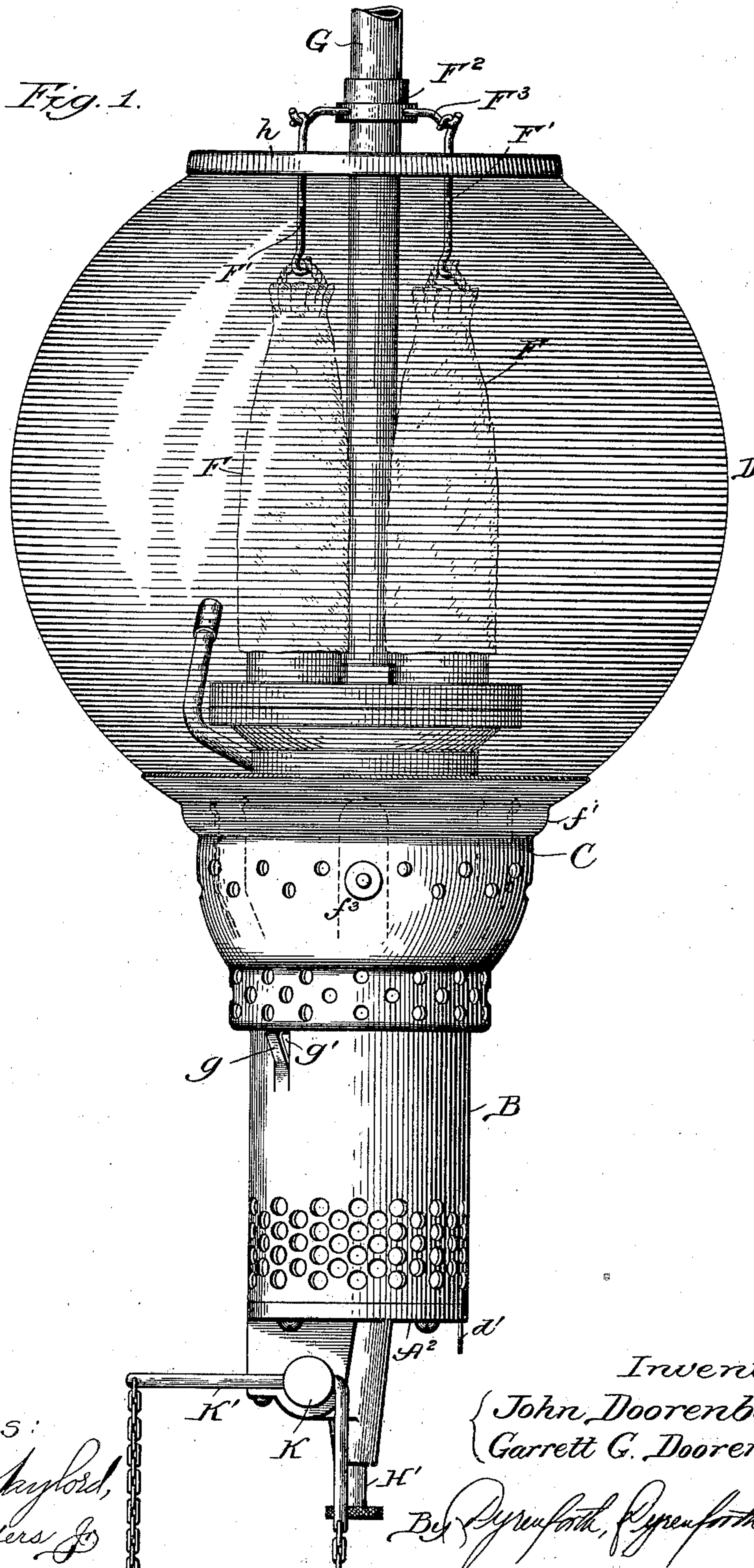
Patented Nov. 5, 1901.

J. & G. G. DOORENBOS.
LAMP.

(Application filed July 6, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:

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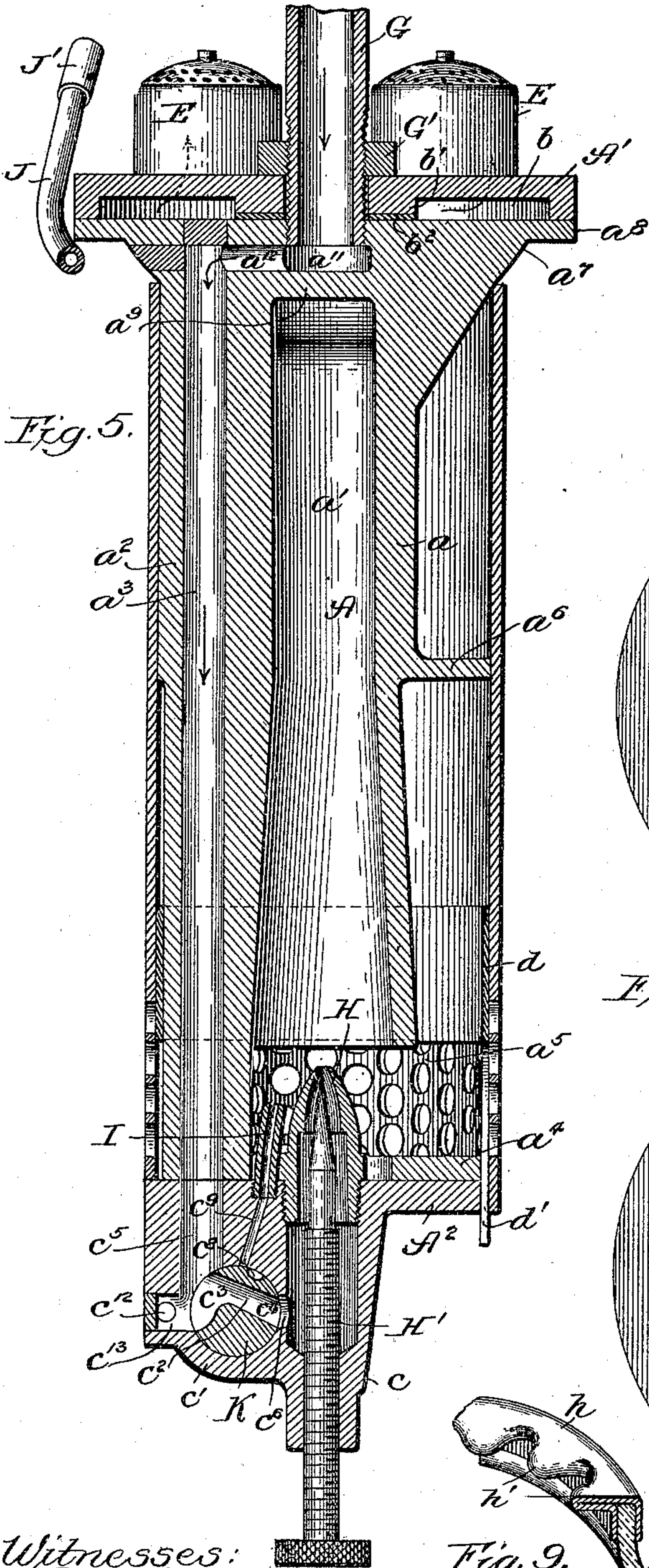


Fig. 5.

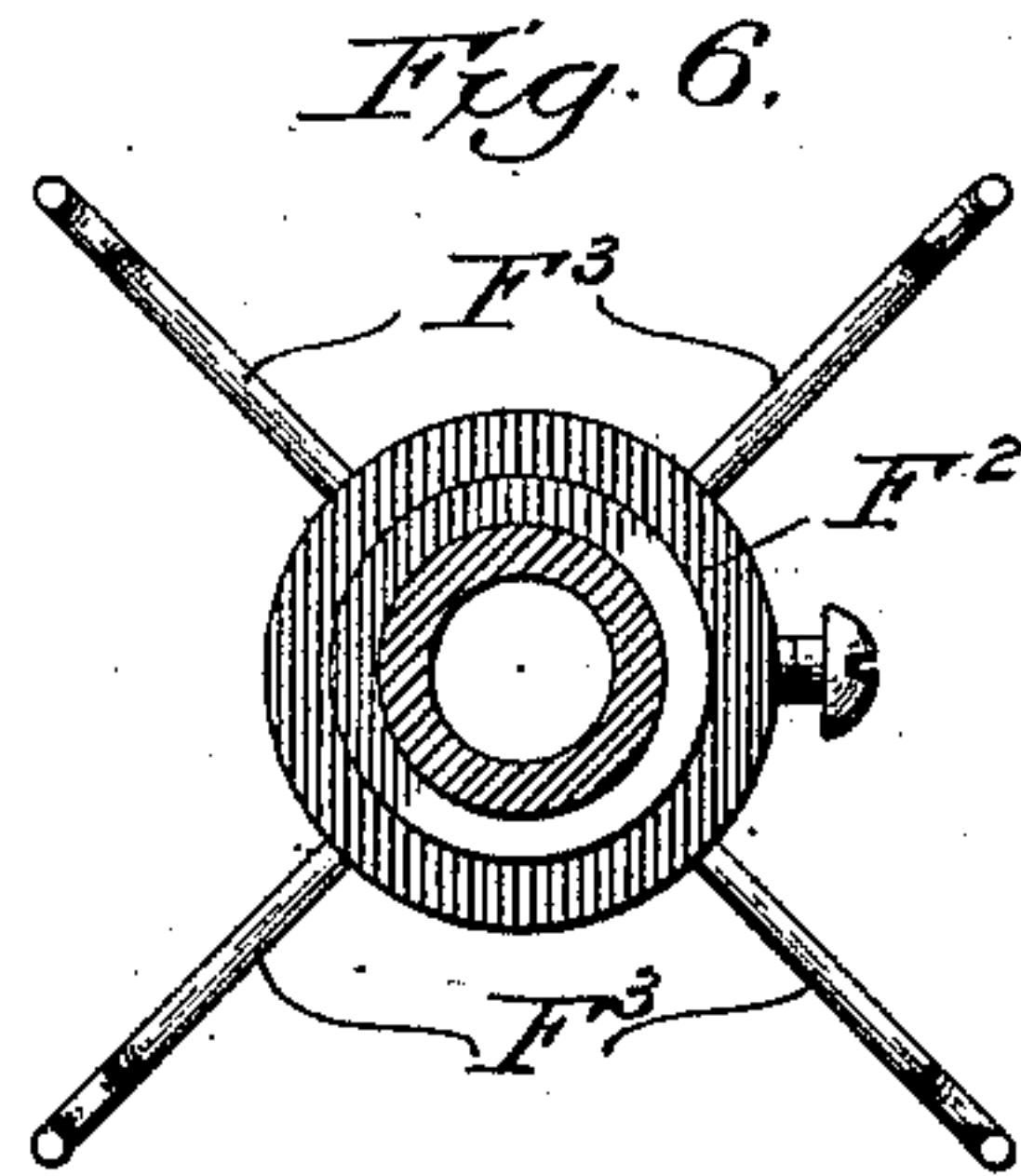


Fig. 6.

Fig. 7.

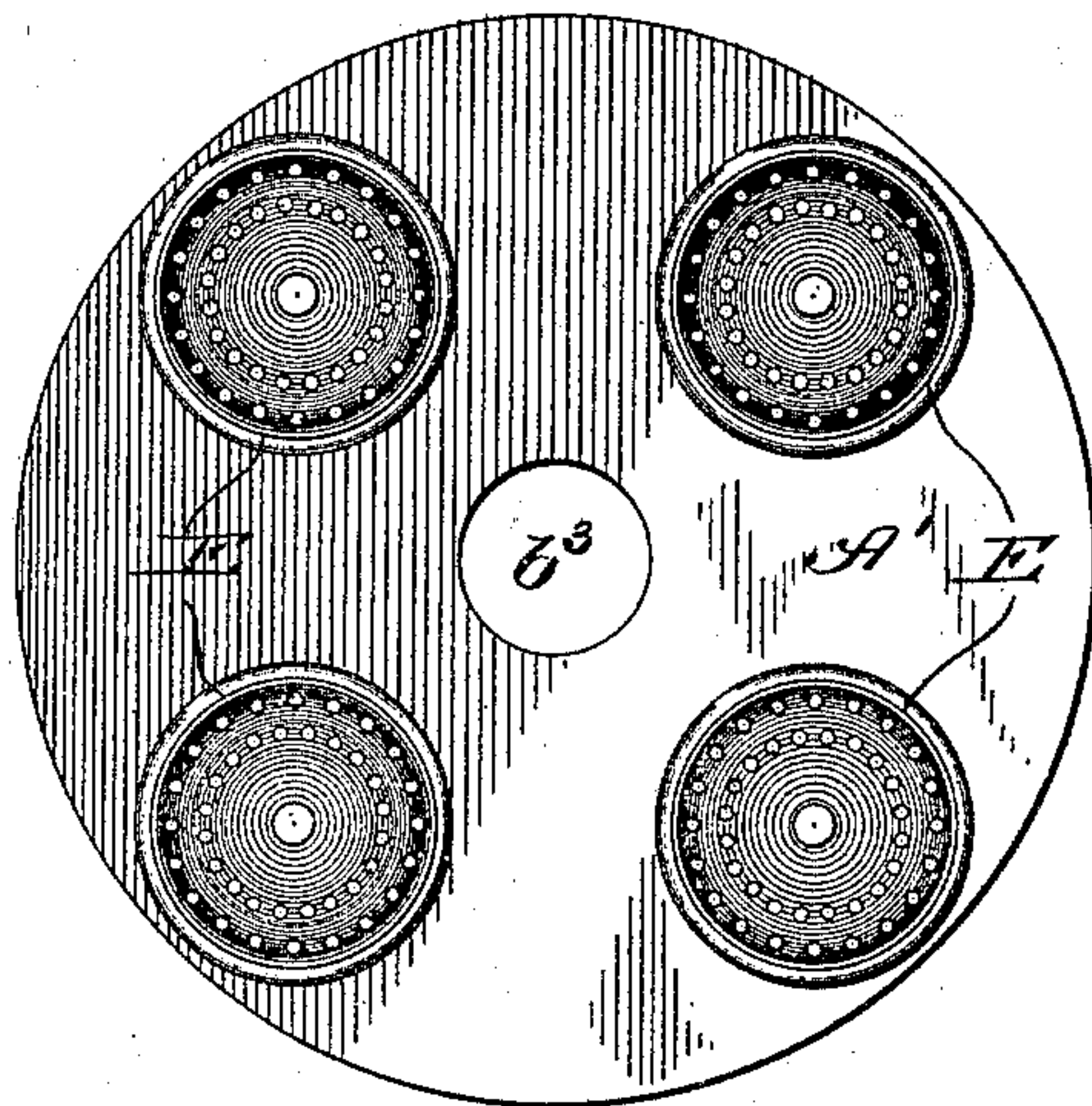


Fig. 8.

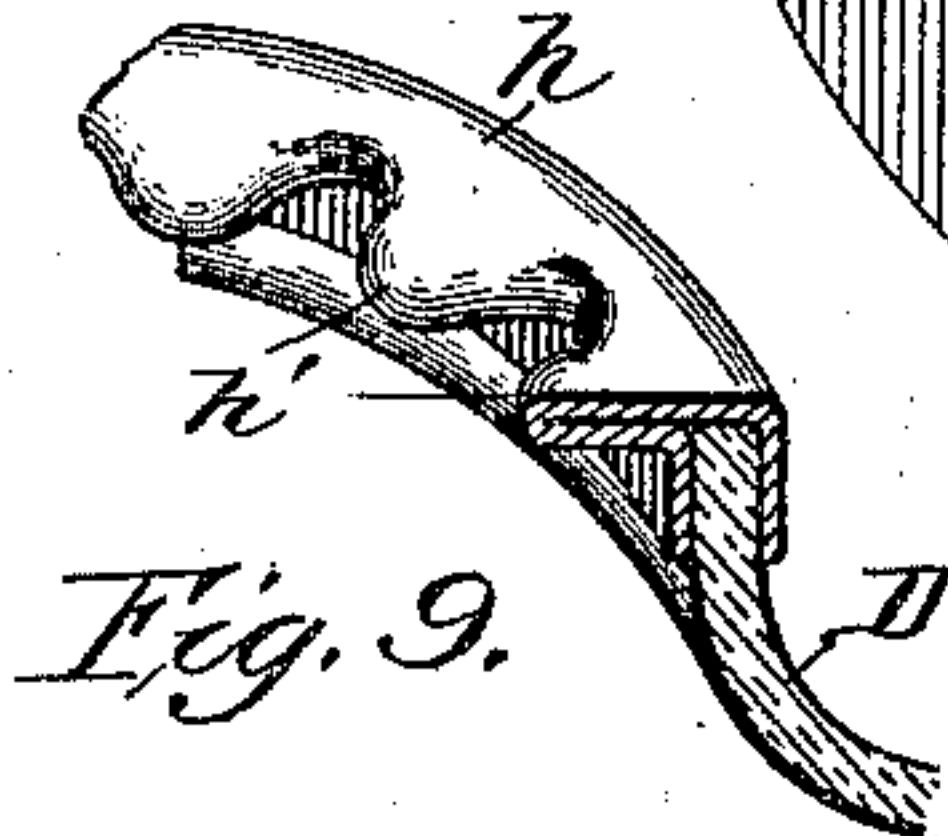
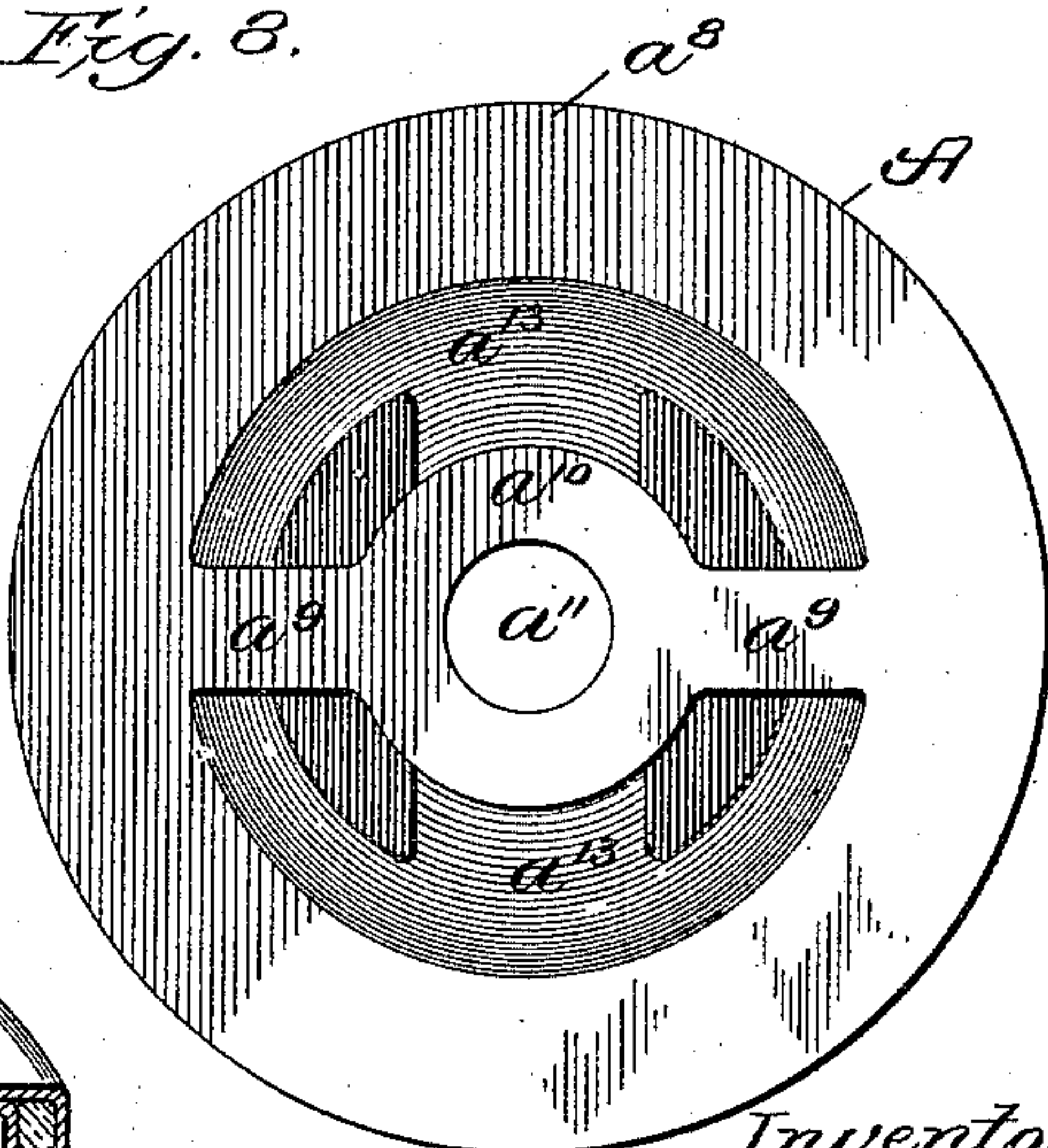


Fig. 9.

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UNITED STATES PATENT OFFICE.

JOHN DOORENBOS AND GARRETT G. DOORENBOS, OF KALAMAZOO,
MICHIGAN.

LAMP.

SPECIFICATION forming part of Letters Patent No. 686,035, dated November 5, 1901.

Application filed July 6, 1901. Serial No. 67,278. (No model.)

To all whom it may concern:

Be it known that we, JOHN DOORENBOS and GARRETT G. DOORENBOS, citizens of the United States, residing at Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented a new and useful Improvement in Lamps, of which the following is a specification.

Our invention relates particularly to gas-lamps employing mantles of the Welsbach type, which are heated to incandescence by means of burners particularly adapted to generate heat.

Our primary object is to provide a lamp of this character of improved general construction, of high candle-power, and containing numerous improvements in matters of detail.

In the preferred construction the lamp is supported by a gas-pipe, through which the gas is supplied, and the gas passes from said pipe through a passage in the burner-body to the central mixer-chamber, from which as a common source the several burner-orifices are supplied.

Our invention is illustrated in its preferred form in the accompanying drawings, in which—

Figure 1 is a view of a complete lamp with the exception of the shade; Fig. 2, an enlarged broken section of the lamp; Fig. 3, an enlarged broken section of the detachable base for the burner-body, taken as indicated at line 3 of Fig. 2; Fig. 4, an enlarged view of a valve employed at said base; Fig. 5, an enlarged section of the burner-body and its casing, the section corresponding with the section shown in Fig. 2; Fig. 6, a plan section showing the mantle-support; Fig. 7, a plan view of the burner-body, showing the four main burner-orifices with which the lamp is in this instance provided; Fig. 8, a plan view of the burner-body with the top removed, and Fig. 9 an enlarged broken perspective view showing the binding with which the upper portion of the globe is provided.

The preferred construction is as follows: A represents a burner-body having a removable top A' and a removable base A²; B, a cylinder or casing inclosing the body A; C, a globe-support which fits upon the cylinder B; D, a globe carried by the support C; E,

main burner-orifices with which the top A' is equipped; F, mantles suspended by means of hooked links F' from a mantle-support F², provided with arms F³; G, a supply-pipe about which the mantles are grouped and which serves to support the lamp, said pipe having threaded connection at its lower end with a central threaded perforation in the upper portion of the body A and being equipped adjacent to its lower end with a nut G', by means of which the top A' (suitably perforated to receive the pipe) is securely clamped to the burner-body; H, a central gas orifice or nozzle with which the part A² is equipped, the passage thereat being controlled by a needle-valve H'; I, a supplemental gas orifice or nozzle adjacent to the nozzle H; J, a gas-tube for supplying a pilot-burner J', situated adjacent to the main burners E; K, a valve controlling passages leading to the orifices H and I and to the tube J, and K' a bell-crank lever connected with the stem of the valve K and serving to operate said valve, said lever being provided with depending chains through the medium of which it is operated.

The main portion of the burner-body comprises a central tube *a*, having a vertical passage or mixer-chamber *a'*, a vertically-disposed laterally-located enlargement *a''*, provided with a descending gas-passage *a'''*, a circular bottom flange *a⁴*, an air-admission passage *a⁵*, adjacent thereto, a central circular flange *a⁶*, and a bell-shaped upper end *a⁷*, provided with a circular flange *a⁸*. The bell-shaped upper end is hollowed out and equipped with a cross-piece *a⁹*, having a central boss *a¹⁰*, provided with a threaded depression or perforation *a¹¹*, which receives the lower end of the pipe G and connects through a passage *a¹²* in the part *a⁹* with the passage *a³*. The hollowed upper end of the bell communicates by passages *a¹³* with the mixer-chamber *a'*. The upper portion or cap-piece A' of the burner-body comprises a disk provided on its under surface with a circular channel *b*, which communicates with the main burner-orifices E, which are arranged on the upper surface of said disk. Thus there is provided a central collar *b'* on the lower surface of said disk, and between said collar and

the adjacent surface of the boss a^{10} at the upper end of the main portion of the burner-body is confined a washer b^2 , of asbestos or other suitable material. The disk is provided with a central perforation b^3 , through which the pipe G loosely passes. From Fig. 5 it will be understood that the part A' is firmly clamped to the main portion of the burner-body by means of the pipe G and the nut G'.

The base A² of the burner-body is provided with a suitable downward extension c , perforated and threaded to receive the stem of the needle-valve H', and adjacent thereto with a lateral vertically-disposed projection or lug c' , having a horizontal chamber or perforation for receiving the valve K. The valve K is provided, Figs. 2, 4, and 5, with a channel c^2 , having an inlet end c^3 and an outlet end c^4 . The enlargement c' is provided with a channel c^5 , which is always in communication with the end c^3 of the channel c^2 . The part c' is further provided with a passage c^6 , with which registers the end c^4 of the passage c^2 when the valve K is in the open position. The valve K is provided with branch passages c^7 c^8 , the latter of which may be caused to register with a passage c^9 , with which the part c' is provided and which leads to the supplemental gas-orifice I. The purpose of the supplemental gas-orifice I is to supply an increased quantity of gas to the lamp at the moment of ignition. Afterward the supply to the supplemental orifice is cut off, and the lamp receives its supply through the main orifice H. The tube J of the pilot-burner passes loosely through a perforation c^{10} in the flange a^4 of the burner-body and screws into a perforation c^{11} in the part c' . Said tube receives a continuous but small supply of gas through a passage c^{12} , which communicates with the passage c^5 through a passage c^{13} . Said tube J receives a larger supply of gas through a passage c^{14} , with which the channel c^7 of the valve K registers for a short time during the operation of opening the valve K to light the lamp. After the lamp is lighted, however, the passage c^{14} is closed, leaving the pilot-burner supplied with only sufficient gas to keep it lighted. The passage c^{12} is regulated by a screw c^{15} , and, if desired, the supply to the pilot-burner may be wholly cut off.

The casing B is firmly secured to the flanges a^4 a^6 , over which it closely fits. Said casing is provided at its lower end with a series of perforations for admitting air, and the air-admission is controlled by means of an internal sleeve d , provided with an operating-stem d' , which projects downwardly through a slot in the base A².

The globe-support C comprises an inner cylindrical portion f , which fits closely upon the cylinder B and is suitably recessed or slotted to give it the desired springiness, and an outer globe-receiving bell-shaped portion f' , connected with the lower end of the cylindrical portion f , the flaring end of the bell-shaped portion being upturned to receive the

lower margin of the outer surface of the globe. Stamped or cut from the cylindrical portion f are prongs f^2 , which serve to engage the inner margin of the lower end of the globe. These prongs f^2 are left attached at their lower ends to the cylinder from which they are stamped and are connected some distance below their upper ends with the bell-shaped part f' by adjusting bolts or screws f^3 . The prongs f^2 are preferably three in number and are located at equal distances apart. Through their medium the globe may be firmly secured within the bell-shaped part f' and, moreover, may be given the proper vertical adjustment by proper adjustment of the bolts f^3 . The cylindrical portion of the globe-support fits snugly upon the cylinder B, as stated. To prevent the possibility of the parts becoming separated, however, we provide the cylinder B, Fig. 1, with a spring g , which works within a slot g' in said cylinder. This spring may, if desired, be formed from the material of the cylinder B, as shown. The relative position of the three prongs of the globe-support is shown by dotted lines in Fig. 1.

In Fig. 1 the valve K is shown in its open position, and when in this position one of the arms of the bell-crank lever K' occupies substantially a horizontal position and, moreover, is of such length as to be engaged by the globe-support in the event that the latter is lowered, thereby to automatically close the valve K. The purpose is to render it impossible to remove the globe without first shutting off the gas-supply.

The globe D is equipped at its upper end with a light metallic binding h , which has an interned fluted flange h' at its inner side. This binding may be formed from a single piece of metal, as illustrated, the fluting affording sufficient springiness to permit the binding to pass readily over the top of the burner-body when the globe is being removed. The binding serves to prevent injury to the globe during removal.

The operation will be readily understood from the foregoing description.

The pilot-burner may be kept constantly lighted with a small supply of gas through the passage c^{12} . When it is desired to light the lamp, it is only necessary to pull upon the right-hand chain, thereby to turn the valve K to the open position shown in Fig. 1. During the operation of opening the valve K the passage c^8 of said valve is brought for a short time into registration with the passage c^9 , supplying the supplemental gas-orifice I, and at the same time the passage c^2 registers with the passage c^6 of the main orifice H sufficiently to supply a full pressure of gas at the orifice H. For a moment also the passage c^7 of the valve K registers with the passage c^{14} , thereby supplying an increased quantity of gas to the pilot-burner sufficient to cause flames to shoot across the main burners E. This causes the gas to be ignited at the burners E, and during the final movement of

the valve K the passages c^7 c^8 move out of registration with the passages which they supply, and thereafter the lamp is supplied wholly through the orifice H, except for the small supply of gas which passes to the pilot-burner and which is only sufficient to maintain the light thereat.

The passage of gas at the nozzle H may be regulated by the needle-valve and the supply of air to the mixer-chamber may be regulated by the sleeve d . When it is desired to replace a mantle, it is only necessary to lower the globe D by sliding the globe-support C downwardly on the cylindrical guide B. This exposes the mantles, while the support C still remains on its guide. The links F' permit the mantles to be applied so that their bases extend down over the burner-orifices E. When it is desired to clean the lamp, the globe may be wholly removed by lowering it and the lamp may be taken apart, if desired. The group of main burner-orifices is supplied from a common source, and said orifices are all removable with the member A', which member is readily detachable.

Changes in form and in details of construction may be made without departure from our invention. Hence no limitation is to be understood from the foregoing detailed description except as shall appear from the appended claims.

What we claim as new, and desire to secure by Letters Patent, is—

1. In an incandescent gas-light lamp, the combination of a supporting gas-pipe, a burner-body suspended therefrom provided with a mixer-chamber, a plurality of main burner-orifices on said burner-body and grouped about the lower end of said pipe and supplied from said mixer-chamber, a descending gas-passage communicating with said pipe and leading to the base of said burner-body and supplying gas to said mixer-chamber, and a valve controlling said passage.

2. In an incandescent gas-light lamp, the combination of a burner-body provided with a mixer-chamber and a descending gas-passage, a plurality of main burner-orifices on said burner-body and communicating with said mixer-chamber, and a valve controlling the supply of gas to said mixer-chamber.

3. In an incandescent gas-light lamp, the combination of a burner-body having a central mixer-chamber and a laterally-disposed descending gas-passage, a head for said burner-body equipped with a plurality of main burner-orifices communicating with said mixer-chamber, a central supporting supply-pipe connected with said head and communicating with said descending gas-passage, and a valve controlling the supply of gas to said mixer-chamber.

4. In an incandescent gas-light lamp, the combination of a burner-body having a mixer-chamber, a removable head connected with said burner-body and equipped with a plurality of main burner-orifices communicating

with said mixer-chamber, a gas-supply passage leading to the lower end of said mixer-chamber, and a valve controlling the supply of gas to said mixer-chamber.

5. In an incandescent gas-light lamp, the combination of a supporting gas-pipe, a burner-body having a mixer-chamber, a head for said burner-body removably connected with said pipe and with said burner-body, main burner-orifices grouped about said pipe and communicating with said mixer-chamber, a gas-passage communicating with said pipe and leading to the lower end of said mixer-chamber, and a valve controlling the passage of gas to the mixer-chamber.

6. In an incandescent gas-light lamp, the combination of a supporting supply-pipe, a burner-body having threaded connection with said pipe and supplied with a mixer-chamber and a descending gas-passage, a removable head for said burner-body receiving said pipe, a nut having threaded connection with said pipe and serving to secure said head to said body, main burner-orifices grouped about said pipe and communicating with said mixer-chamber, and a valve controlling the supply of gas to said mixer-chamber.

7. In an incandescent gas-light lamp, the combination of a burner-body, equipped at its upper end with a main burner-orifice and having a mixer-chamber in communication therewith, a pilot-burner located adjacent to said burner-orifice, a supply-pipe for said pilot-burner, a main gas-orifice located at the base of said mixer-chamber, a supplemental gas-orifice located at the base of said mixer-chamber, and a valve operating to admit gas to said two last-named orifices at an intermediate position of the valve and to close the admission to said supplemental orifice in the extreme open position of the valve.

8. In an incandescent gas-light lamp, the combination of a burner-body having a mixer-chamber and a descending gas-passage, a head for said burner-body equipped with main burner-orifices communicating with said mixer-chamber, a supply-pipe supporting said burner-body and communicating with said descending passage, a removable base for said burner-body having a passage registering with said descending passage and equipped with a gas-orifice supplying gas to said mixer-chamber, and a valve carried by said removable base and controlling said last-named passage.

9. In an incandescent gas-light lamp, the combination of a burner-body having a mixer-chamber and a descending gas-passage, a head for said burner-body equipped with main burner-orifices communicating with said mixer-chamber, a supply-pipe supporting said burner-body and communicating with said descending passage, a removable base for said burner-body having a passage registering with said descending passage and equipped with a gas-orifice supplying gas to said mixer-chamber, a supplemental gas-orifice in a part

carried by said removable base, and a common valve controlling the passages to said two last-named orifices.

10. In an incandescent gas-light lamp, the
 5 combination of a burner-body having a mixer-chamber and a descending gas-passage, a head for said burner-body equipped with main burner-orifices communicating with said mixer-chamber, a supply-pipe supporting said
 10 burner-body and communicating with said descending passage, a removable base for said burner-body having a passage registering with said descending passage and equipped with a gas-orifice supplying gas to said mixer-chamber, a supplemental gas-orifice carried
 15 by said removable base, a pilot-burner carried by said base, and a valve controlling the passage of gas to said main and supplemental gas-orifices and to said pilot-burner.
- 20 11. In an incandescent gas-light lamp, the combination of a burner-body comprising a centrally-located mixer-chamber, a laterally-disposed descending gas-passage, a hollowed bell-shaped upper end for said burner-body,
 25 a cross-piece at said upper end having a central pipe-receiving perforation in communication with said descending gas-passage, the hollow of said bell being in communication with said mixer-chamber, a removable head
 30 for said burner-body equipped with a plurality of main burner-orifices, and a valve controlling the passage of gas from said descending passage to said mixer-chamber.

12. In an incandescent gas-light lamp, the

combination of a burner-body, a casing there- 35
 for affording also a globe-support guide, a globe-support connected with said casing and provided with a bell-shaped upper end, and prongs within said bell-shaped upper end and
 40 adjustably connected therewith, said prongs serving to adjustably clamp a globe to said bell-shaped end.

13. In an incandescent gas-light lamp, the combination of a burner-body, a casing there- 45
 for, and a globe-support carried by said casing, comprising a cylindrical portion fitting upon said casing, a bell-shaped portion having an outwardly-flaring upper end and supported toward its lower end by said cylindrical portion, and globe-clamping prongs 50
 connected with said cylindrical portion and adjustably connected with said bell-shaped portion.

14. In an incandescent gas-light lamp, the combination of a burner-body, a casing there- 55
 for, a globe-support slidably mounted on said casing, a valve controlling the supply of gas to the mixer-chamber of said burner-body, and a projecting arm on said valve located in the path of said globe-support, whereby said 60
 arm may be automatically moved when said support is lowered.

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In presence of—

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