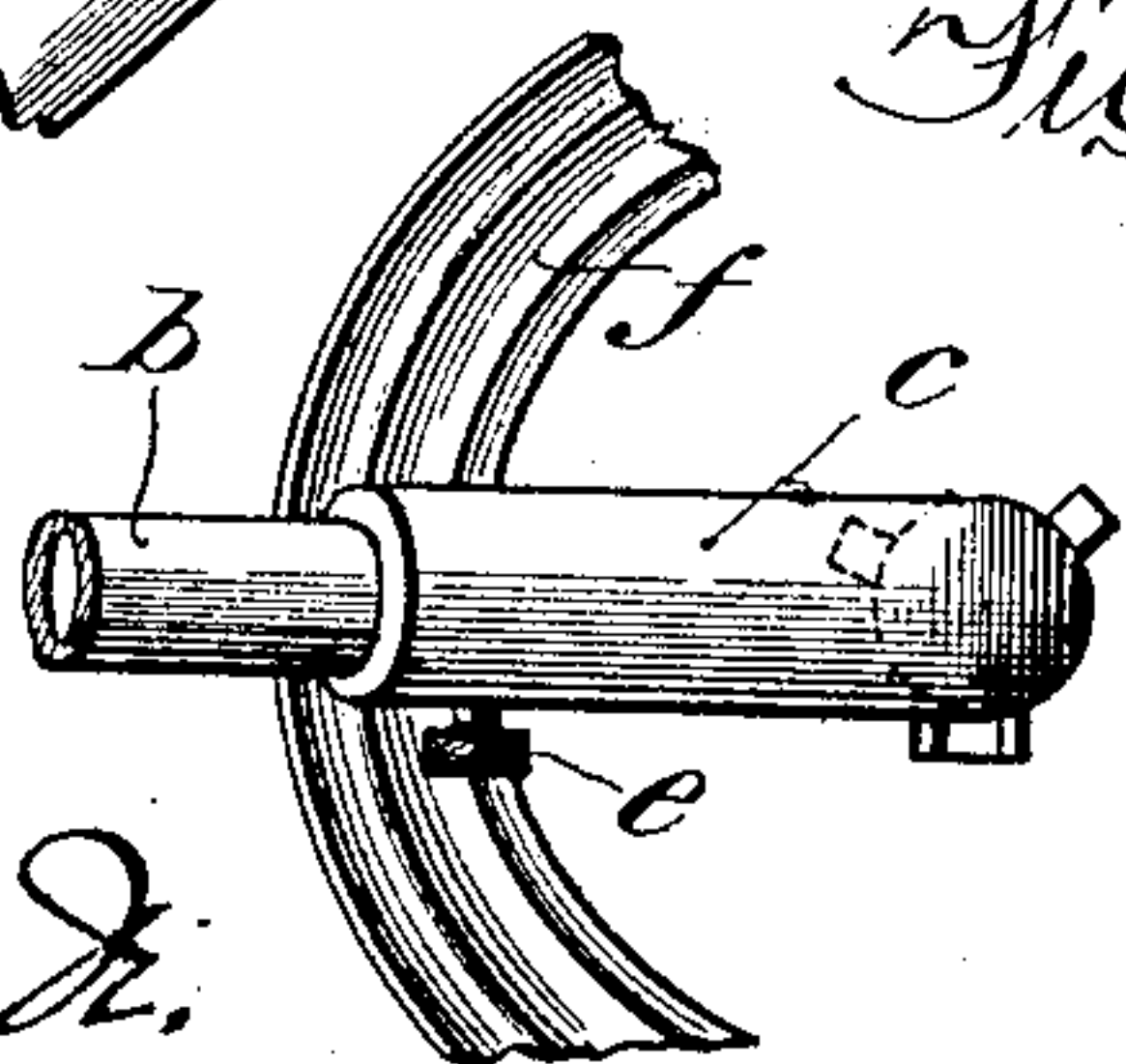
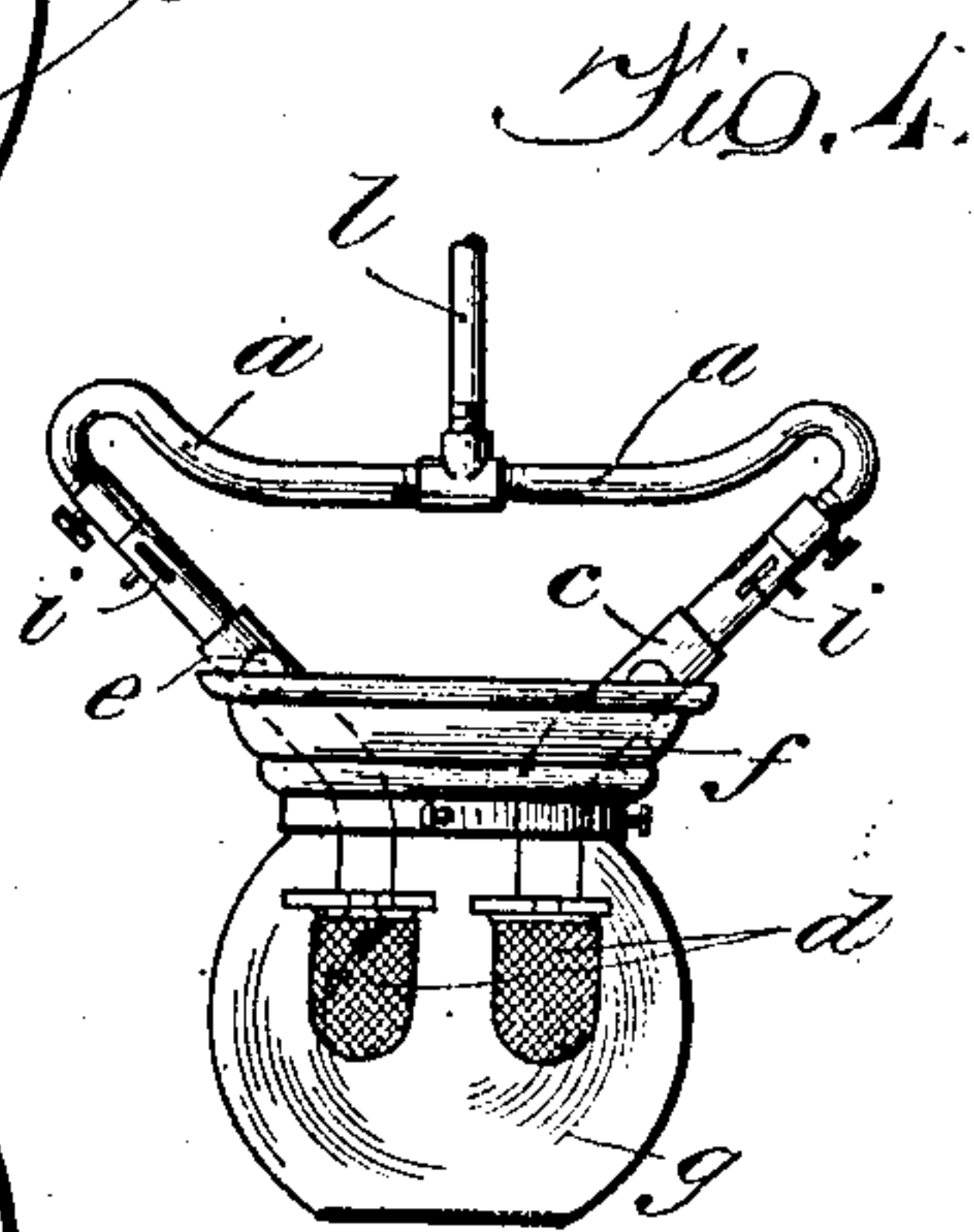
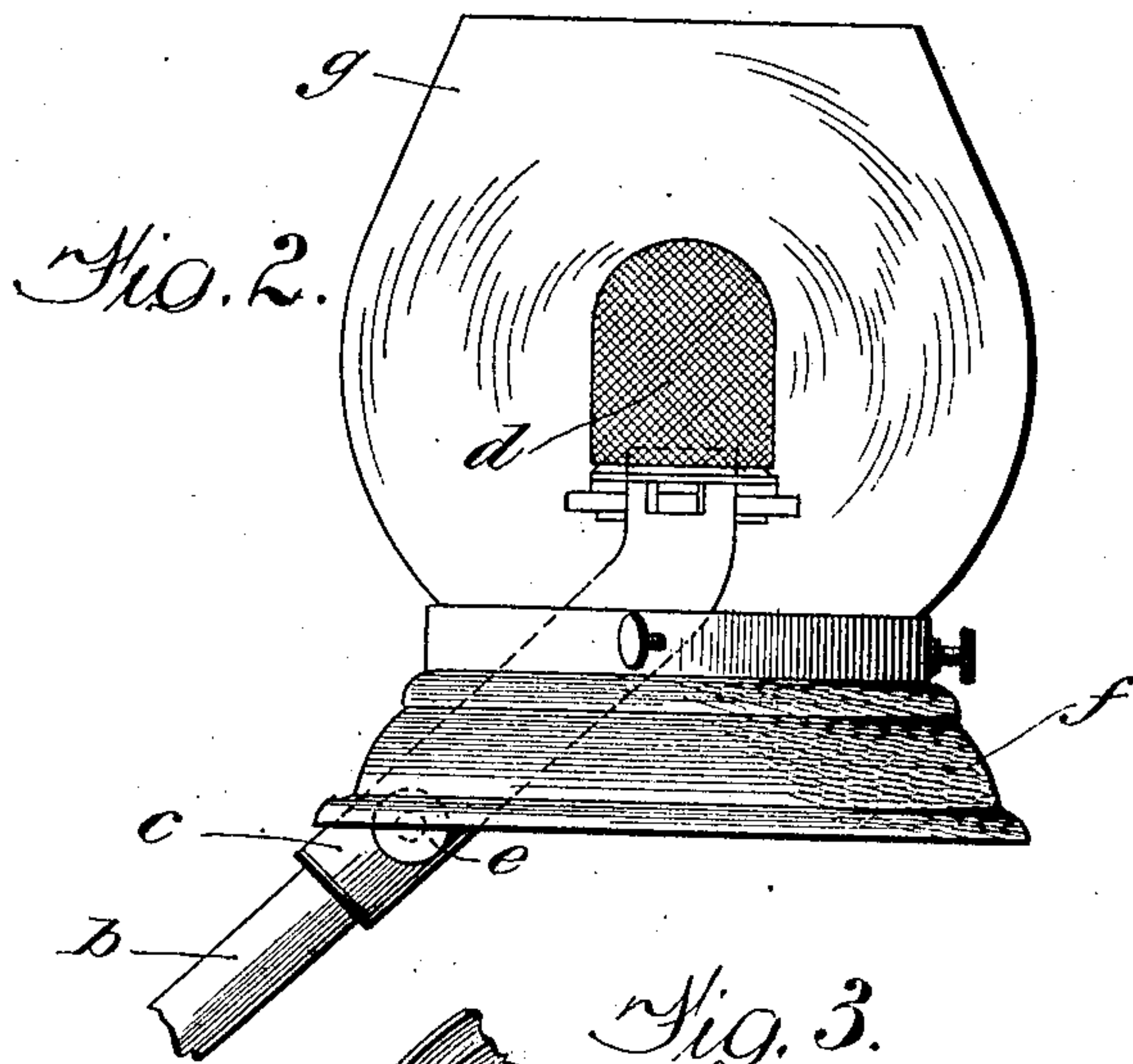
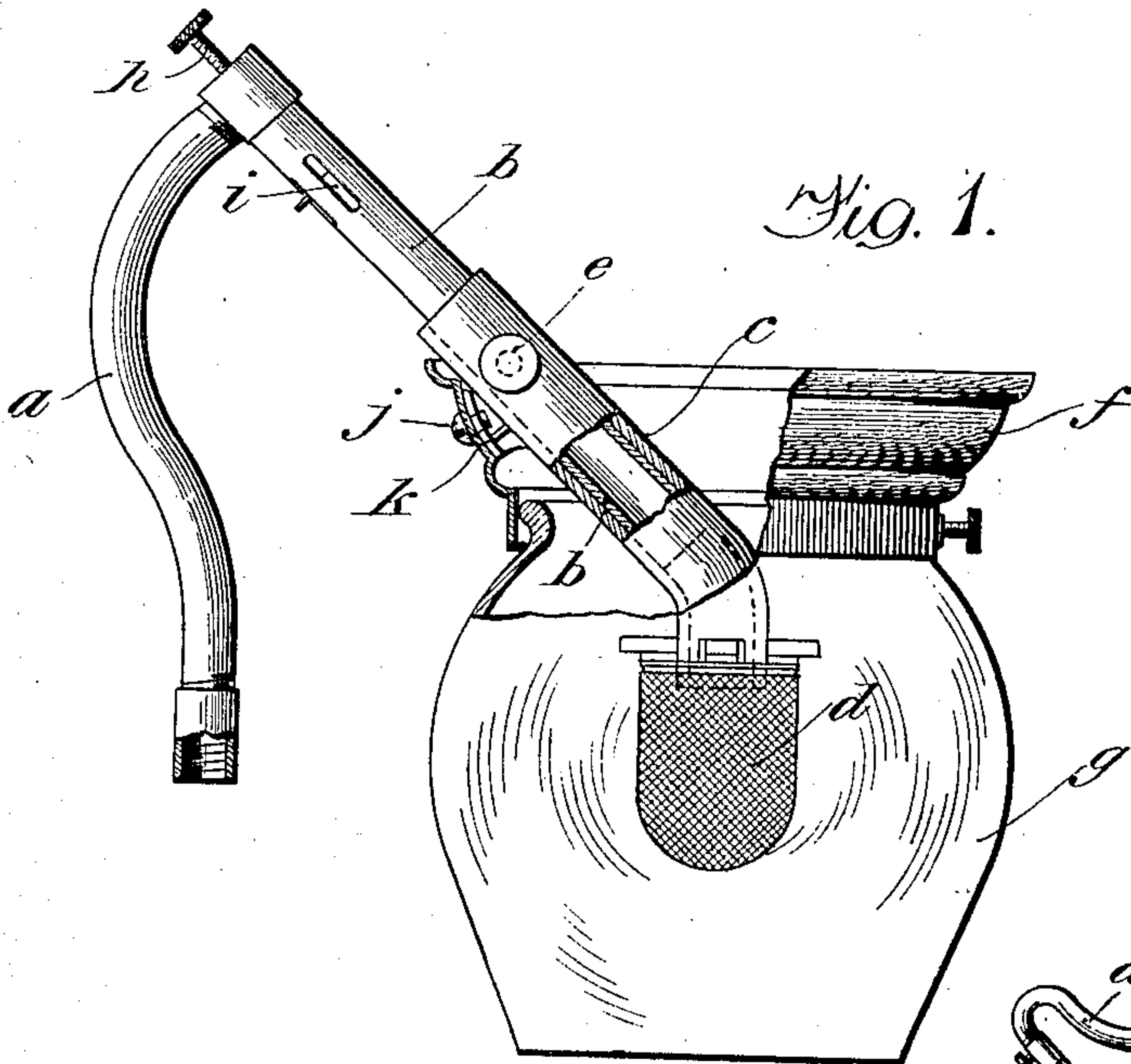


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 INCANDESCENT GAS LAMP.
 APPLICATION FILED MAY 2, 1908.

919,430.

Patented Apr. 27, 1909.

2 SHEETS—SHEET 1.



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Fig. 5.

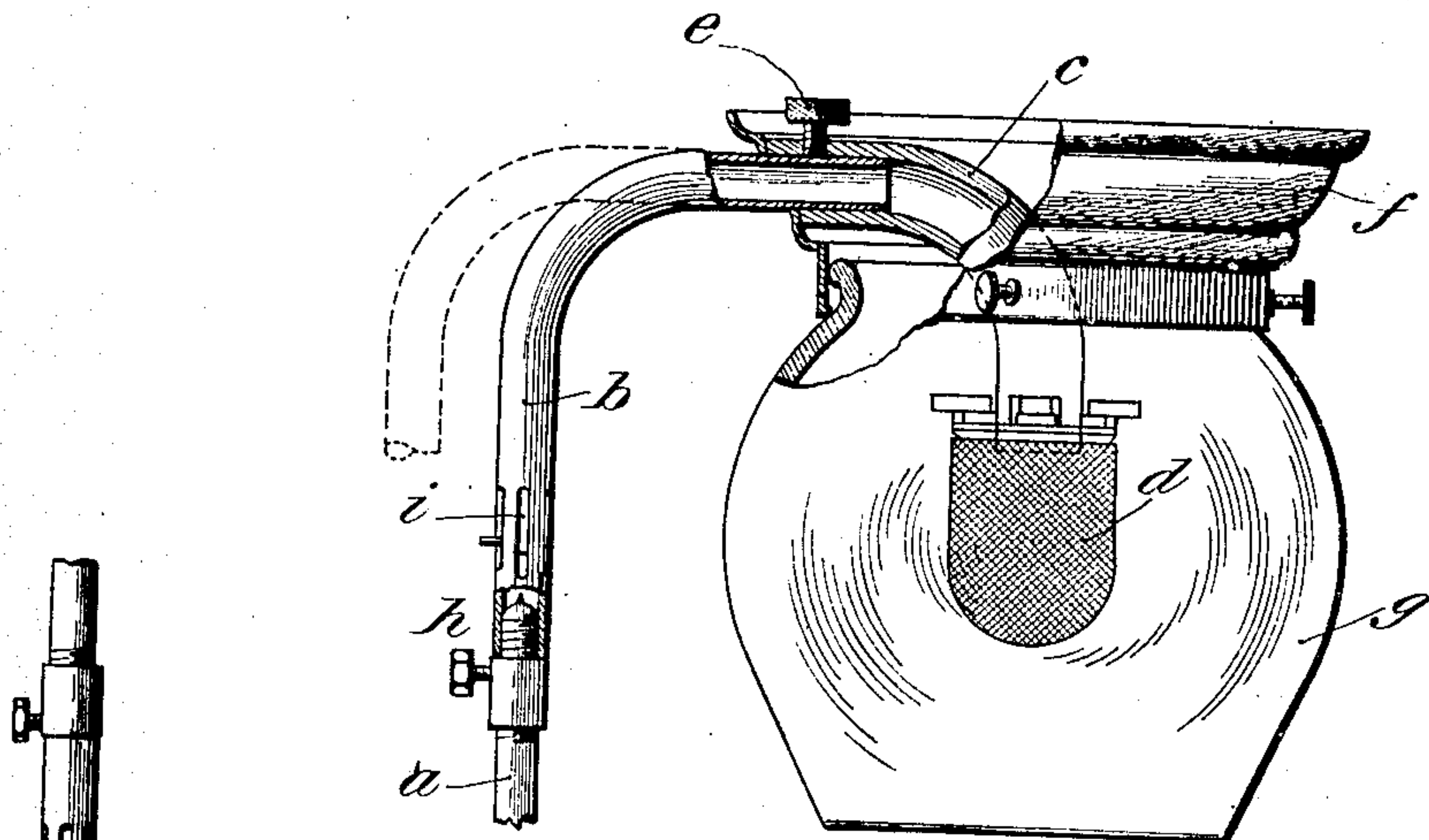


Fig. 6.

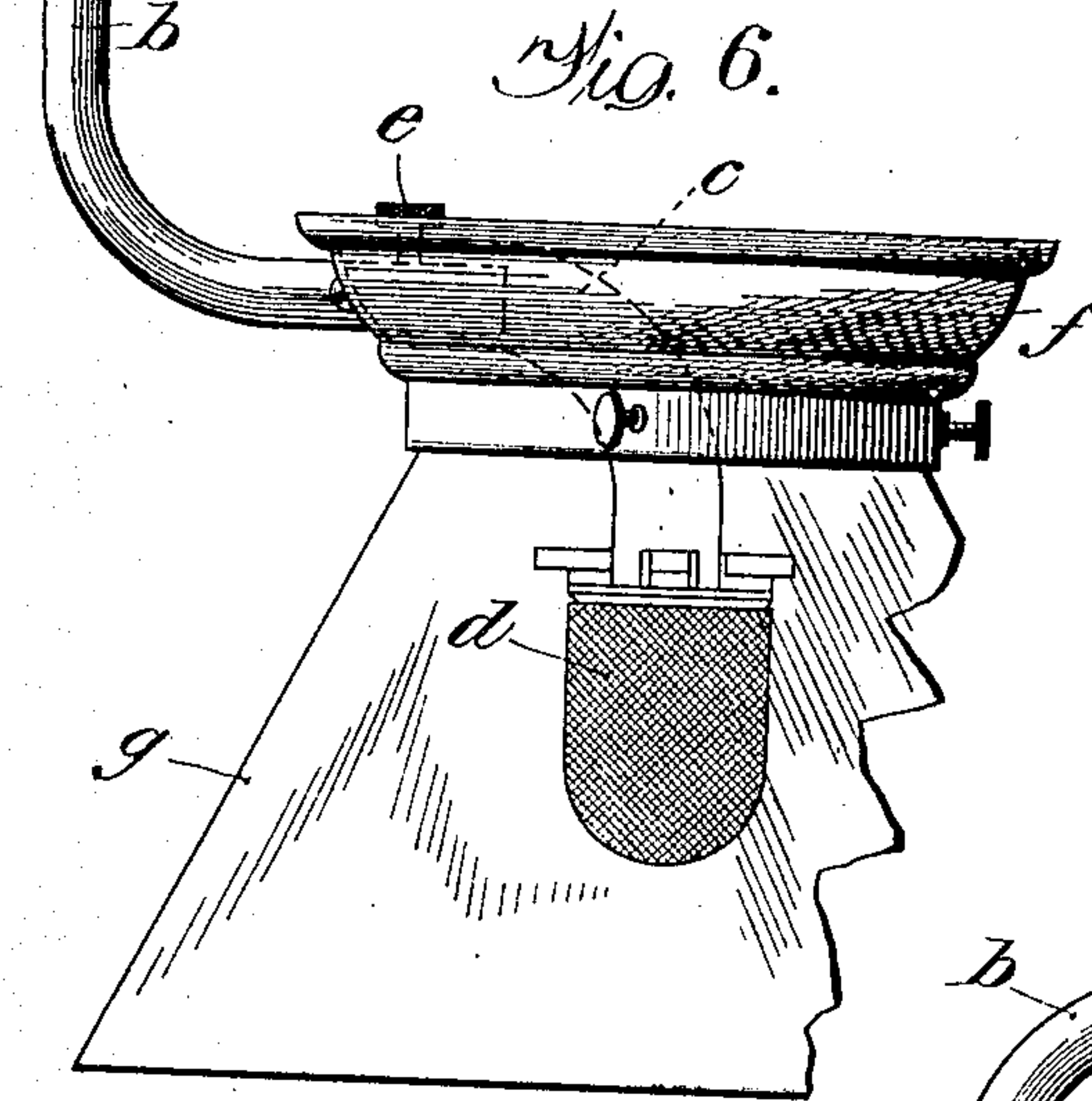


Fig. 7.

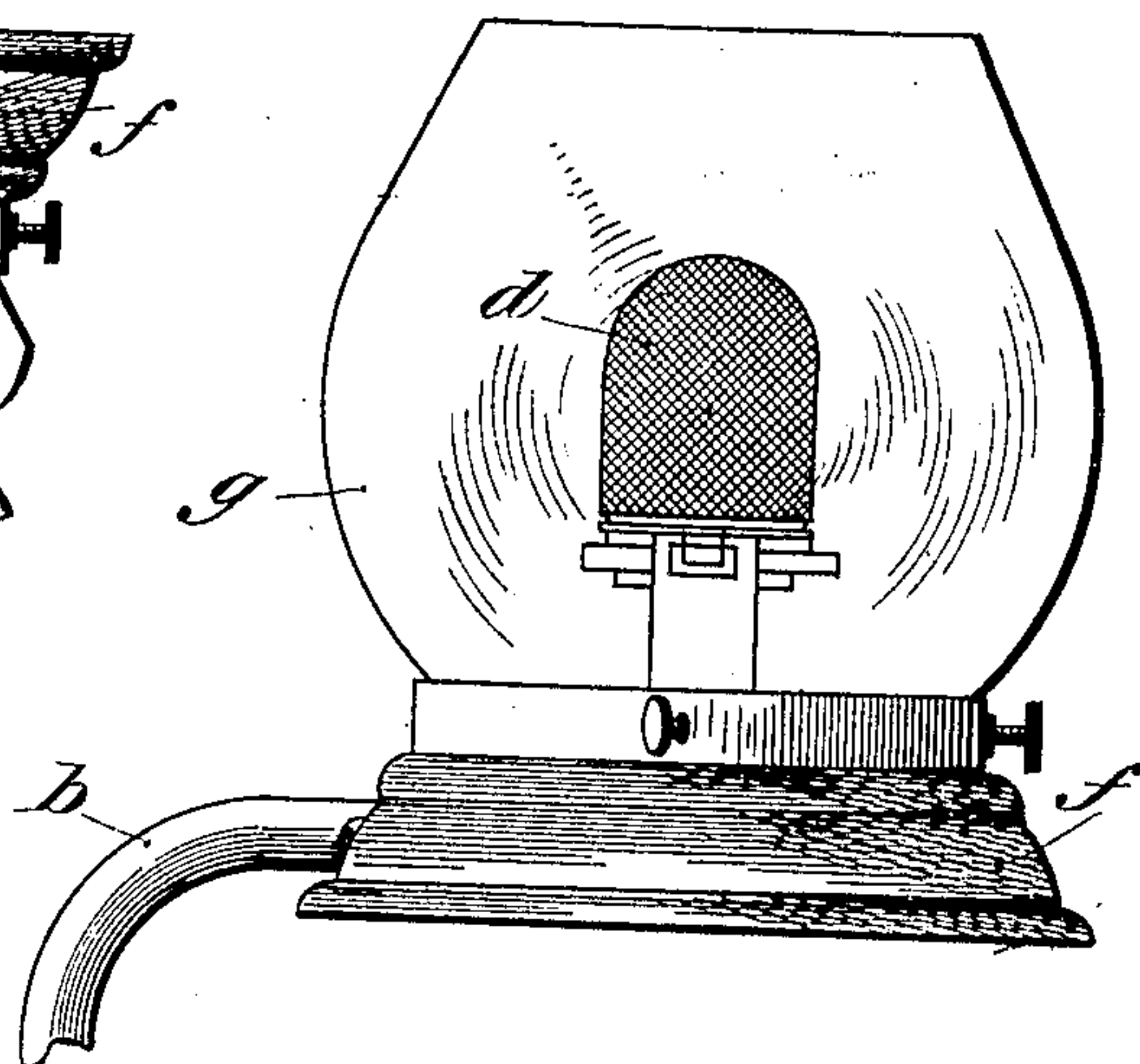
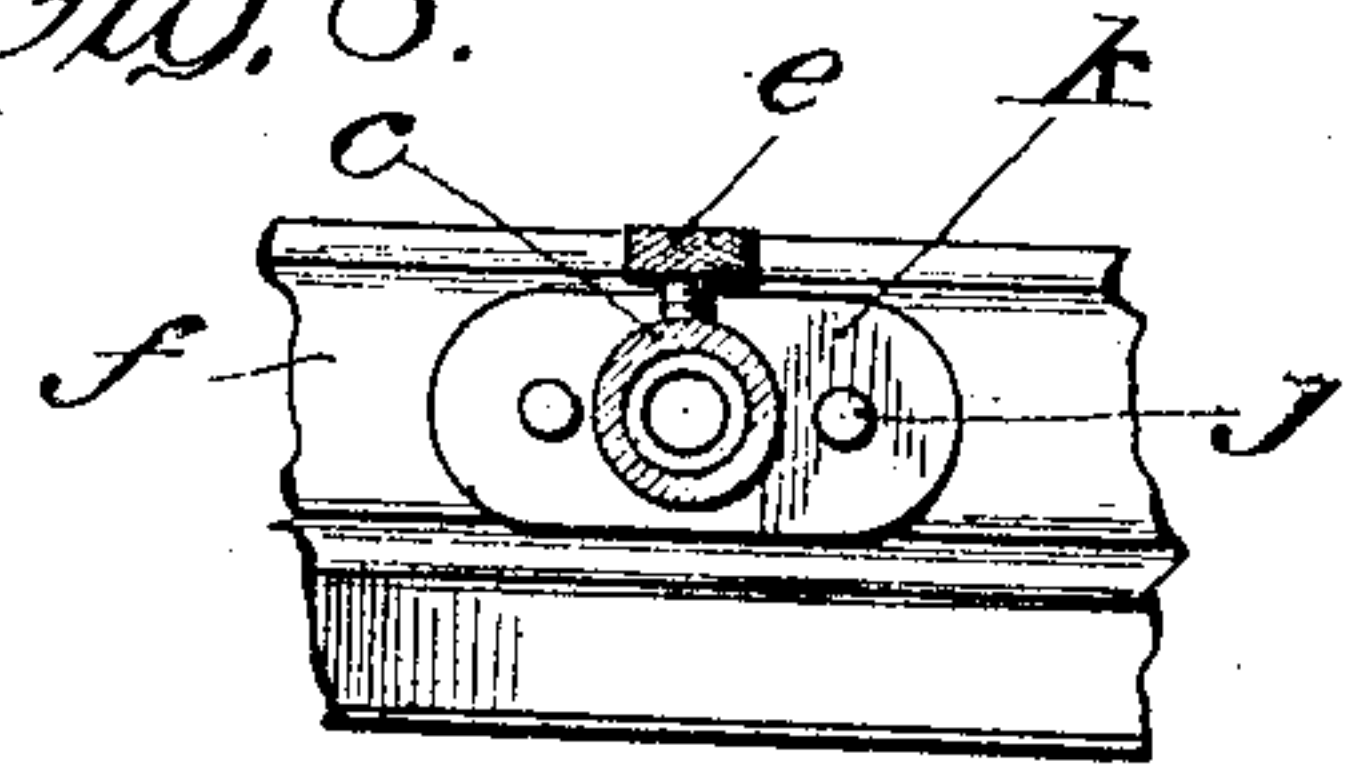


Fig. 8.



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UNITED STATES PATENT OFFICE.

MAX HERSKOVITZ, OF CHICAGO, ILLINOIS.

INCANDESCENT GAS-LAMP.

No. 919,430.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed May 2, 1908. Serial No. 430,577.

To all whom it may concern:

Be it known that I, MAX HERSKOVITZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Incandescent Gas-Lamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The main object of my invention is to improve the efficiency of incandescent gas-lamps, more particularly of the inverted mantle type. This object is accomplished principally by providing for control of the pressure of the gas, locating the Bunsen tube where the gas and air enter out of the heat zone, and preventing high heating of the gas before reaching the tip of the burner-tube.

Heretofore it has been difficult to obtain perfect combustion with inverted gas-burners, thus limiting the efficiency of the lamps and causing the mantles to blacken for want of proper combustion. My invention obviates these difficulties and incidentally provides a method for adjusting to some extent the position of the light. The location of the Bunsen tube out of the heat zone also permits regulation of the same while the light is burning; and the lamp will hold its color and will not tarnish as there is no heat touching the brass parts.

A further object of my invention is to provide a very simple, practicable and inexpensive construction; and, further, to provide an incandescent lamp which can readily be adjusted to maintain the light inverted, upright, side-wise, or at an angular position.

Embodiments of my invention are illustrated in the accompanying drawings which form a part of this specification, and wherein like letters of reference denote corresponding parts in the several figures. The invention will first be described by reference to the said drawings and then more particularly pointed out in the appended claims.

Figure 1 is a side view of one form of inverted incandescent gas-lamp embodying my invention. Fig. 2 is a side view of the same lamp adjusted or reversed to upright position. Fig. 3 is a detail plan view of a portion of the air and gas conducting pipe and a fragment of the globe support. Fig. 4 is a front view, on a reduced scale, of a twin burner lamp embodying my invention. Fig.

5 is a side view of another form of lamp embodying my invention. Fig. 6 is a side view of the same lamp with its air and gas conducting pipe adjusted at a different position. Fig. 7 is a side view of the same lamp adjusted or reversed to upright position. Fig. 8 is a detail section through the burner tube and fragment of the globe-support through which the Bunsen tube enters.

The lamp comprises an angular or elbow Bunsen tube, which may be approximately the shape either of the letter V or the letter L, provided with a telescoping burner tube having a bent tip portion provided with the gas burner or mantle.

Fig. 1 shows an approximately V-shaped Bunsen tube consisting of an upright goose-neck pipe *a* and the Bunsen tube proper *b*, the latter attached at an inclination of preferably forty-five degrees; and a burner-tube *c* fitting telescopically on the Bunsen tube and having its outer end bent downward at an obtuse angle, making a vertically depending tip to hold the incandescent burner or mantle *d* which may be affixed to the said tip of the burner-tube by any ordinary or approved means. The burner-tube is fixedly secured on the Bunsen tube by means of a set-screw *e*. On the burner-tube is mounted a crown globe-support *f* holding the translucent globe *g* which incloses the mantle and the major portion of the burner tube. The goose-neck pipe *a*, shown provided with an interiorly threaded or tapped thimble at its lower end, is adapted for attachment on any ordinary gas fixture (not shown) which usually terminates in a short upright nipple. This pipe *a* forms an elbow with the Bunsen tube proper *b*, which is provided in its head with the usual needle-valve gas-regulator, whose adjusting screw or button is indicated at *h*, and with the air-shutter or inspirator *i* through which the air is drawn in suitable quantities by the jet of gas issuing from the needle-valve to provide the proper admixture for the burning composition. The air-shutter may be what is termed a "blind-shutter", that is one which simply admits the air without affording regulation, or it may be adapted to control the admission of air by restricting or enlarging the openings in the Bunsen tube. The globe support *f* is shown attached to the upper portion of the burner tube *c* by means of a screw *j* which is inserted through the globe support and tapped in a lug *k* on the under side of

said tube. This makes the burner tube rigid with and practically a part of the globe support, though it may be detached by unfastening the screw; and thus provides a lamp construction having a removable Bunsen tube attached at the rim portion of the crown of the globe, by means of the set-screw *e*. The telescoping tubes *b* and *c*, fixedly secured by the set-screw *e*, constitute an adjustable or extensible air and gas conducting pipe, or practically an extensible Bunsen tube, the burner tube being considered as an extension of the Bunsen tube; by means of which the mantle can be placed nearer to or farther from the gas regulator and air-shutter. By this means it is possible to adjust or control the pressure of the gas, the telescoping of the two tubes having practically the effect of lengthening or shortening the Bunsen. This is very important for proper combustion, since the gas pressure varies in every city, and it will also vary at different fixtures in different parts of the same building. With this method it is possible to control the pressure of the gas to the proper point. It is noted that the gas regulator and air-shutter are out of the heat zone and consequently will not be heated while the light is burning, so that the same can be regulated without extinguishing the light. But a greater advantage is that the air-shutter is out of line with the flame, and its operation unaffected by hot-air currents, so that the air continues to enter in the same quantity at all times and to mix with the gas, if the shutter is properly regulated, and in such proportions that the combustion at the mantle is perfect, so that the flame is better and there is no solid product of combustion to be deposited upon and destroy the mantle. The lamp will also hold its color and will not tarnish as there is no heat to affect the external parts, which are usually of brass.

Success in the inverted mantle art is dependent upon securing proper effects under varying conditions as to flow, pressure and quality of the gas supplied. In practical operation, it has been demonstrated that my invention, providing for admission and regulation of the gas and air out of the disturbing influence of the heat zone, the downward flow of the gas, and the control of the pressure by regulating the length of the Bunsen tube relative to the burner, operates with entire satisfaction even with unfavorable conditions; and perfect combustion may be obtained and the fuel employed in an economical manner for producing incandescence of the mantle.

In operation, the lamp is adjusted bodily with relation to the Bunsen tube by loosening the set-screw *e* and telescoping the burner tube *c* on the tube *b*, to shorten or lengthen the Bunsen as may be required to

get proper pressure; and after having been so adjusted for a given pressure of gas there is usually no need for further adjustment. By means of the interfitting of the tubes *b* and *c*, one of which can be turned on or in the other, it is also possible to adjust the lamp so as to place the mantle in upright or other desired position. For example, if the tube *a* be affixed to a gas-pipe in horizontal instead of upright position, with the Bunsen tube *b* extending upward, the burner-tube *c* can readily be turned around for placing the lamp in an upright position as shown in Fig. 2. This will appear by holding Fig. 1 on its side, with the left hand of the sheet as the bottom, from which it will be seen that by revolving the burner-tube *c* through an angle of one hundred and eighty degrees, the lamp will assume an upright position relative to the Bunsen tube.

Fig. 4 shows an application of the invention to a twin-burner. A gas feed-pipe *l* is joined by a tee to two of the goose-neck pipes *a* which are so adjusted that the Bunsen tubes *b* converge downward, and the burner tubes *c* are adjusted to hold the mantles in depending or inverted position, both within the same globe. In this case, the globe support is or may be attached to both of the burner-tubes in the same manner as already described with reference to Fig. 1. It is obvious that the burner-tube *c* in either of Figs. 1, 2 or 4 can be turned and secured in such position as to place the light at an angle of forty-five degrees to the positions respectively shown in these figures; or the tube can be secured so as to hold the mantle and globe either side-wise or at various angles to the perpendicular.

Figs. 5 and 6, representing another form of inverted incandescent lamp embodying my invention, show a substantially L-shaped Bunsen-tube and a substantially L-shaped burner-tube telescopically united and respectively equipped with the other elements already mentioned with reference to the preceding figures. In Fig. 5, the tubes *b* and *c* are shown arranged like the letter "U" inverted, for a downward or inverted light, the tube *b* being affixed on an upright pipe *a*. The dotted lines in Fig. 5 indicate a different position of the pipe *b* when the lamp is adjusted farther therefrom for extending the length of the Bunsen tube relative to the burner. In Fig. 6, the tubes *b* and *c* are shown arranged substantially like the letter "S", also for a downward or inverted light, the tube *b* being fixed to a depending pipe *a*. It is obvious that this construction is susceptible of the same adjustment for changing the position of the lamp. For example, in Fig. 5 the burner-tube *c* can be turned through an angle of one hundred and eighty degrees to place the mantle and the globe in an upright position as shown in Fig. 7. In

the construction shown in these figures, the burner-tube *c* is attached to the globe-support *f* by means of a flange *k* on the end of the burner-tube placed against and affixed by screws *j* or otherwise to the inside of the globe-support as shown in Fig. 8.

I do not desire to limit myself to the specific construction shown, as various modifications may be made in detail without departing from the scope of my invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In an inverted incandescent gas-lamp, an angle-shaped Bunsen tube, and a burner tube telescopically connected to the Bunsen-tube and having a depending tip portion provided with an inverted mantle whereby the latter is out of line with the air-intake, the telescopic connection of the tubes enabling the passage to the mantle to be lengthened or shortened for controlling the pressure of gas and for varying the distance of the mantle from the air-intake.

2. In an incandescent gas-lamp, an air and gas conducting pipe, a bent burner-tube having telescopic connection with said pipe whereby the burner-tube can be adjusted longitudinally and angularly with reference to said pipe, and means for securing the burner-tube in position after adjustment.

3. In an inverted incandescent gas-lamp, a gas-supply pipe, a downwardly slanting Bunsen-tube connected thereto and provided with a telescoping or longitudinally-adjustable burner-tube having a depending mantle-bearing tip.

4. In an inverted incandescent gas-lamp, an air and gas conducting pipe provided with a bent burner-tube adapted to be turned relatively to the air and gas conducting pipe for reversing and angularly-adjusting the light.

5. In an incandescent gas-lamp, an L-shaped Bunsen-tube and, an L-shaped burner-tube telescopically secured together and being thereby adjustable laterally and angularly with reference to each other, and means for clamping the parts together after adjustment.

6. An incandescent gas-lamp comprising a Bunsen-tube and a burner tube having an interfitting connection and clamping means whereby the burner-tube can be adjusted angularly on the Bunsen-tube, said burner-tube having a mantle-bearing tip bent at an obtuse angle thereto.

7. In an incandescent gas-lamp, a plurality of bent or angular burner-tubes, a Bunsen-tube for each burner-tube and telescopically connected therewith, independent clamping means for each telescopic connection, and a globe-holder carried and supported by the tubes.

8. An incandescent gas-lamp adapted for use as an inverted or upright lamp, comprising a Bunsen-tube, a burner-tube having a substantially vertically disposed mantle-bearing tip, the burner-tube being adjustable on the Bunsen-tube to permit a reversal of the vertical position of the mantle-bearing tip, a globe-holder carried by the burner-tube to be adjustable therewith, and a globe carried by the globe-holder and adapted for use in either an inverted or upright position.

9. In an incandescent lamp, the combination with a horizontally disposed globe-holder, of a burner-tube terminating in a vertically disposed mantle-bearing tip and connected to the globe-holder at an angle thereto, the burner-tube being adapted for detachable connection to a Bunsen-tube, the lamp being adaptable for use as an upright or as an inverted lamp.

10. An incandescent gas-lamp adapted for use as an inverted or upright lamp, comprising a Bunsen-tube, a burner-tube having a substantially vertically disposed mantle-bearing tip, the Bunsen-tube and burner-tube being telescopically connected and the burner tube being adjustable on the Bunsen-tube to permit the mantle-bearing tip to be turned to an inverted or upright position, a globe-holder fixed to the burner-tube to be adjustable therewith, and a globe carried by the globe-holder and adapted for use in either an inverted or upright position.

11. An incandescent gas-lamp comprising a crown globe-holder having a burner-tube secured laterally thereto and encircled by said globe-holder, said burner-tube having a bent mantle-bearing tip, and a Bunsen-tube having an interfitting telescopic connection with the burner-tube where the latter is attached to said globe-holder whereby the lamp can be adjusted angularly and laterally on the Bunsen-tube.

In testimony whereof I affix my signature, in presence of two witnesses.

MAX HERSKOVITZ.

Witnesses:

HARRY H. BARNUM,
HAZEL KOEFOLD.