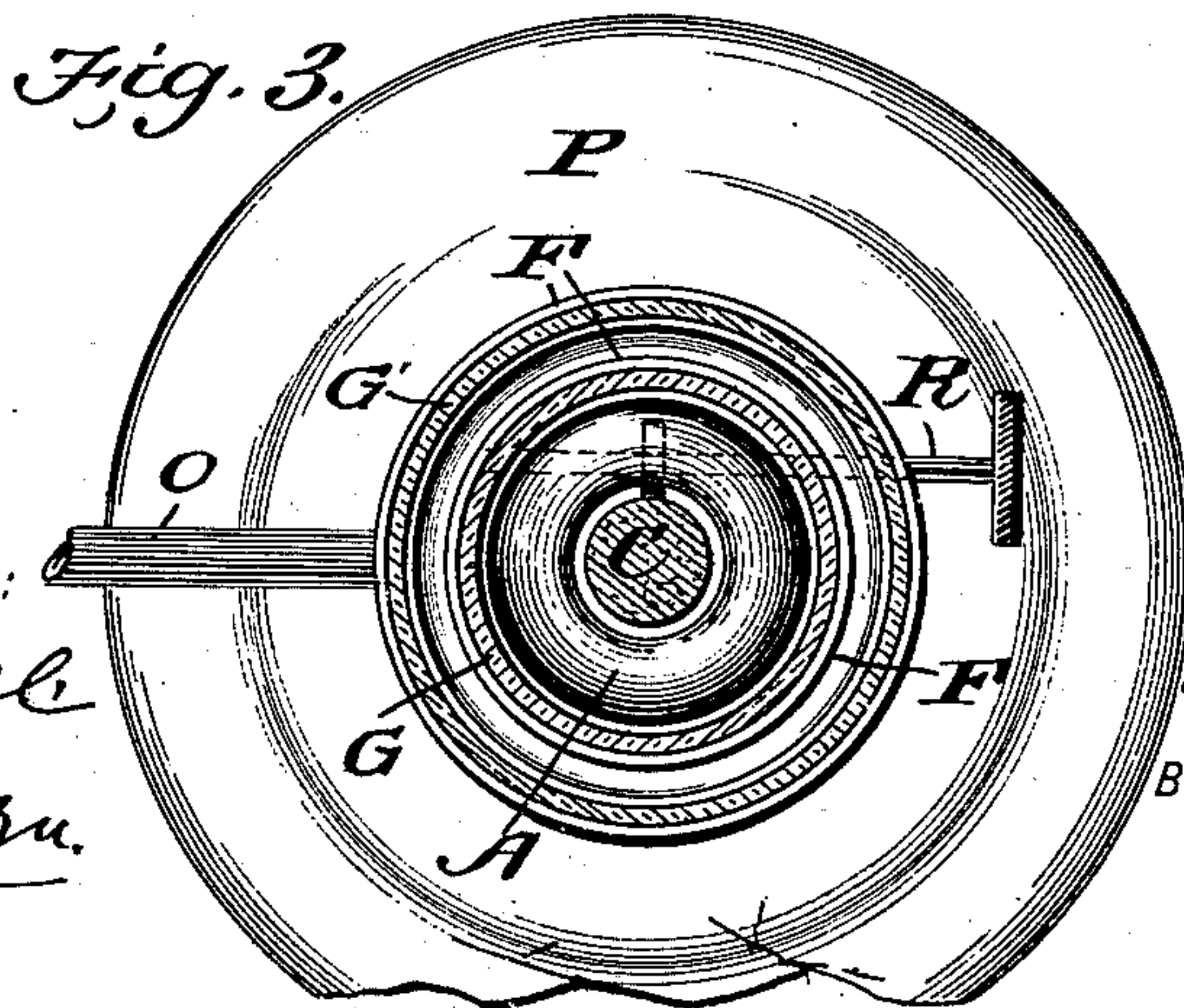
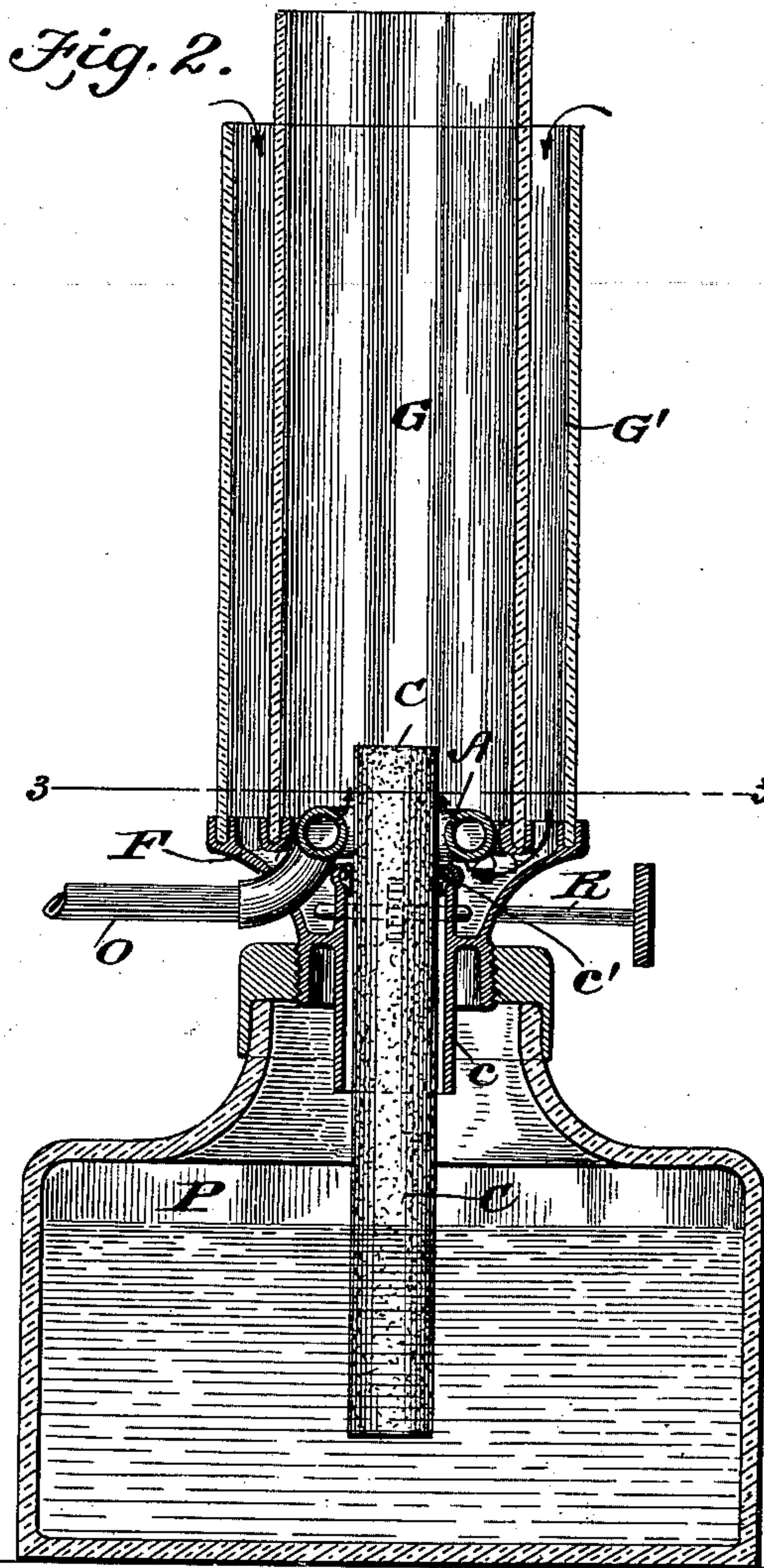
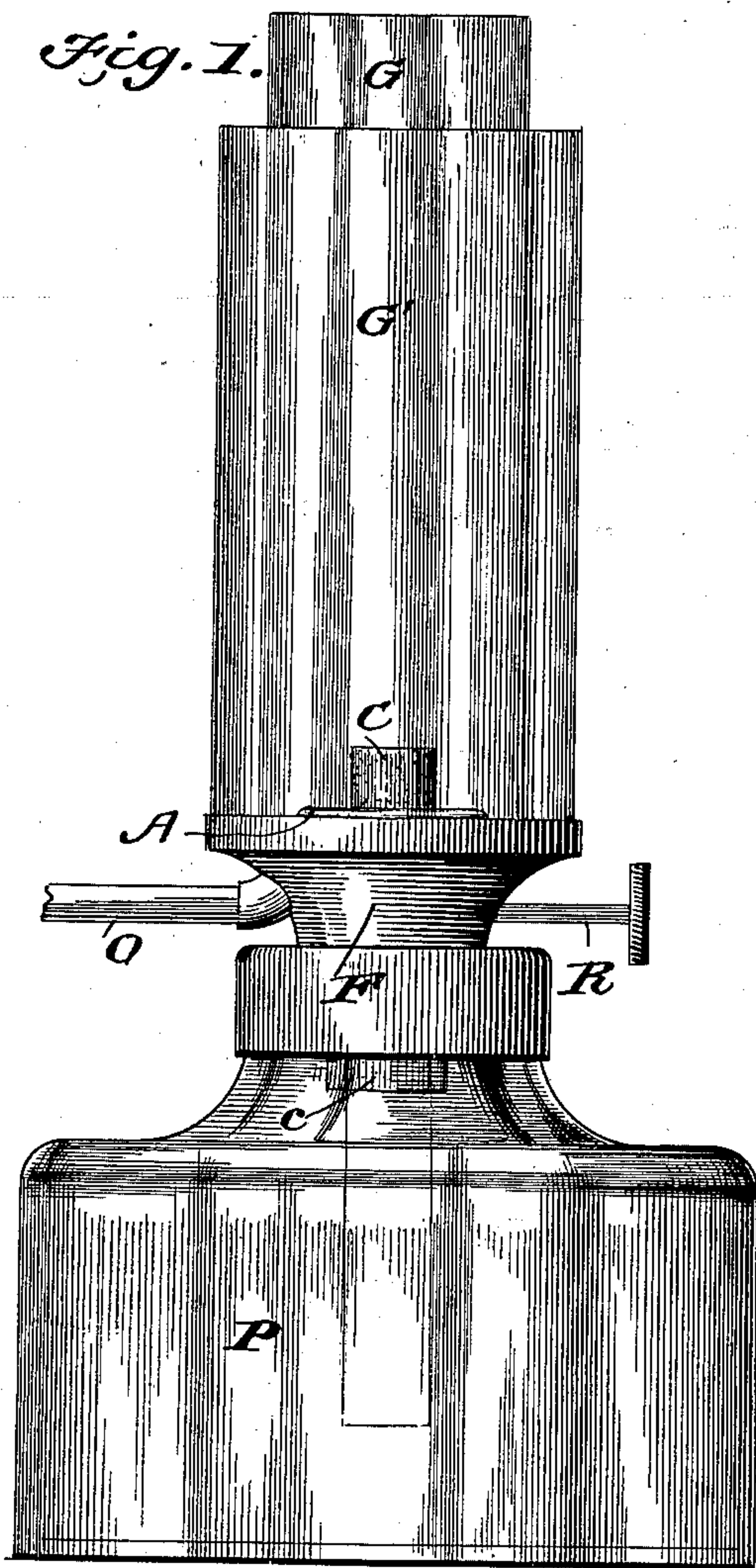


No. 655,112.

Patented July 31, 1900.

A. PLECHER.
CALCIUM WICK LAMP.
(Application filed Jan. 20, 1900.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

ANDREW PLECHER, OF SAVANNAH, GEORGIA.

CALCIUM-WICK LAMP.

SPECIFICATION forming part of Letters Patent No. 655,112, dated July 31, 1900.

Application filed January 20, 1900. Serial No. 2,170. (No model.)

To all whom it may concern:

Be it known that I, ANDREW PLECHER, of Savannah, in the county of Chatham and State of Georgia, have invented a new and useful Improvement in Calcium - Wick Lamps, of which the following is a specification.

My invention is in the nature of a novel form of lamp in which the light is produced by the incandescence of a piece of lime which serves by capillary action to draw up a combustible liquid and is surrounded by a hollow ring having minute holes through it opening toward the lime wick and through which oxygen gas is forced to produce an intense heat by the burning of the combustible liquid, causing the lime to glow with a brilliant incandescence, as hereinafter fully described with reference to the drawings, in which—

Figure 1 is a side view of the lamp; Fig. 2, a vertical central section, and Fig. 3 a horizontal section on line 3 3.

In the drawings, P is a fount or reservoir containing petroleum-oil or any other combustible hydrocarbon.

C is a wick of cylindrical shape constructed of lime as a solid pencil or rod and moving up and down within a suitable tube *c* by means of a ratchet-shaft R in the usual way.

F is the burner-frame, which is screwed upon the neck of the reservoir P and carries the wick-tube. Where the lime wick passes through the tube, there should be a collar *c'*, of asbestos or other soft indestructible but tightly-fitting material, which packs the joint between the lime pencil and the wick-tube to prevent too-rapid escape of oil from evaporation.

Carried upon the burner-frame F there is a tubular ring A, which communicates with a supply-pipe O, leading off to one side and connected with a reservoir of oxygen gas under the requisite pressure. The tubular ring A surrounds the lime wick and is provided with a circular series of holes on its inner side that allows a series of jets of oxygen gas to impinge upon the lime wick. This lime wick becomes incandescent only at the points where the jets of oxygen impinge upon it mixed with a sufficient quantity of hydrocarbon vapor to produce an intense combustion and high heat. It will be understood that the heat of the upper end of the wick vaporizes

the hydrocarbon drawn up by capillary action in the lower part of the wick and forms a surrounding zone of fuel-gas which rises and combines with the oxygen, the oil rising from capillarity in the lime to a sufficient height to permit this to continually take place and without any destructive action upon the lime pencil, whose strength and unity below the incandescent part are not materially affected.

As the lime is a poor conductor of heat, and only the upper end of the wick is heated, and there is a constant upflow of the oil, the temperature of the oil-fount is not raised to any great extent, and in order to relieve this tendency as far as possible the lime wick and burner should be made longer than in the ordinary lamp.

Mounted upon the burner-frame F there are two concentric glass chimneys G and G', held firmly in suitable annular seats in the burner-frame, the outer one, G', being made shorter than the inner one, and the air which is admitted to the lamp along with the oxygen passes over the top of the outer chimney G' and down between the two chimneys, thus serving the double purpose of heating the air to stimulate the combustion and at the same time to reduce the temperature of the inner chimney.

Instead of using a pencil or cylinder of lime to form the wick asbestos or any other refractory and incombustible substance may be used which has sufficient capillary action without being injuriously affected by the heat.

I am aware of the fact that the lime pencil has been used in connection with the oxygen blowpipe to form the so-called "calcium" light and that asbestos lamp-wicks are also old, and I do not claim either of these things.

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

1. A lamp having an absorbent wick made of refractory incombustible material combined with a pipe having perforations for directing jets of oxygen directly against the upper end of the wick, the said wick being both a feeder of oil by capillary action and incandescing at its upper end by the combustion

of oxygen with the hydrocarbon vapors volatilized from the wick below by the heat of incandescence substantially as described.

2. A lamp having a cylindrical absorbent
5 wick made of a refractory incombustible material possessing capillary action, combined with a hollow ring-shaped tube arranged horizontally and surrounding said wick and having perforations on its inner side to cause jets
10 of oxygen to impinge against the wick substantially as and for the purpose described.

3. A lamp having a non-combustible absorbent wick, a hollow horizontal ring embracing the same and provided with perfora-

tions on its inner side to direct jets of oxygen 15 against said wick, a burner-frame with double chimneys mounted on the same to cause the air to pass downwardly between the same and mingle with the oxygen gas impinging upon the wick substantially as and for the purpose 20 described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANDREW PLECHER.

Witnesses:

JOHN F. MCQUADE,
WILLIAM MAYER.