

No. 724,543.

PATENTED APR. 7, 1903.

J. W. CHAPMAN & M. SEIPS.

ALCOHOL LAMP.

APPLICATION FILED AUG. 27, 1902.

NO MODEL.

2 SHEETS—SHEET 2.

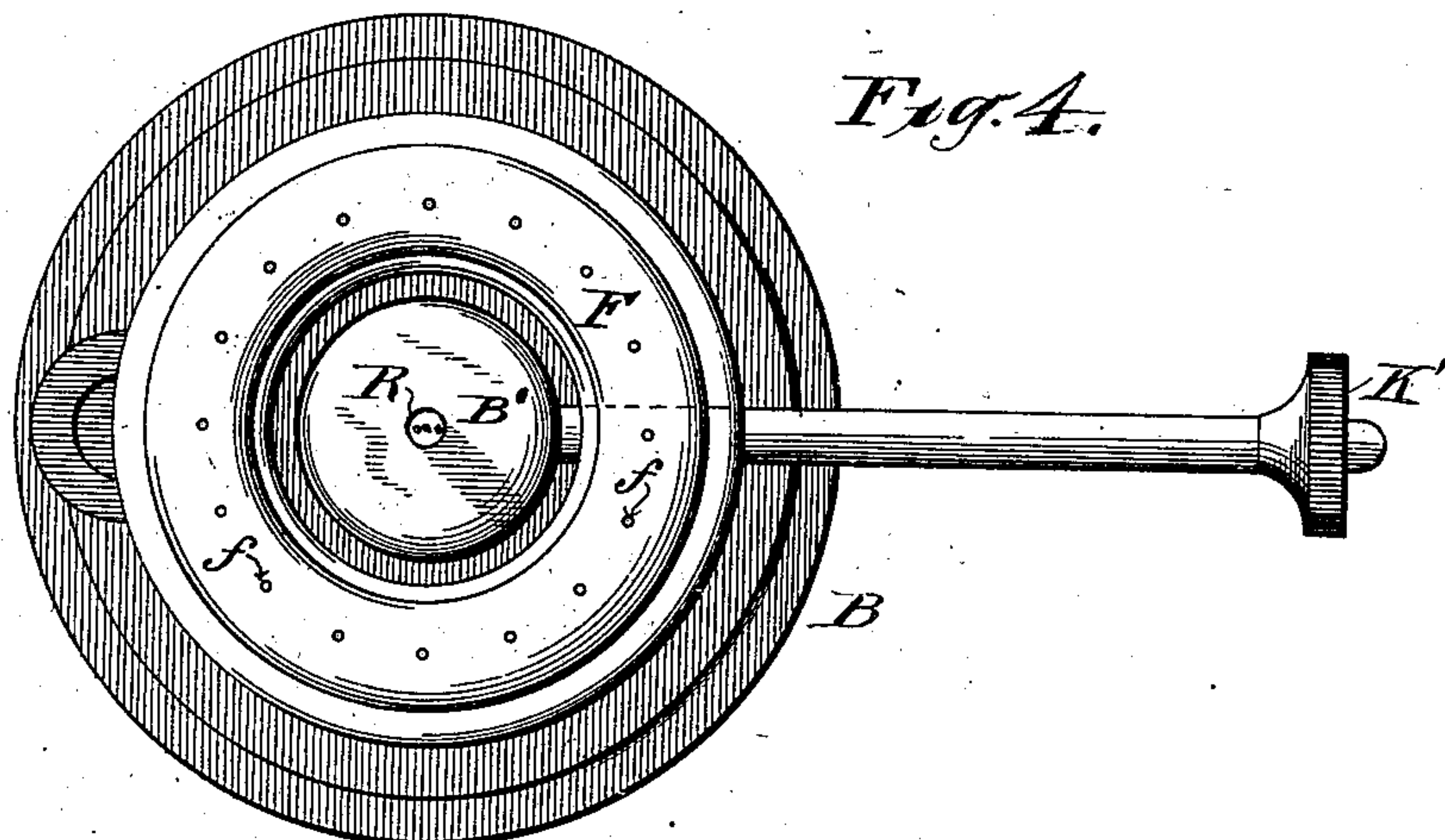


Fig. 4.

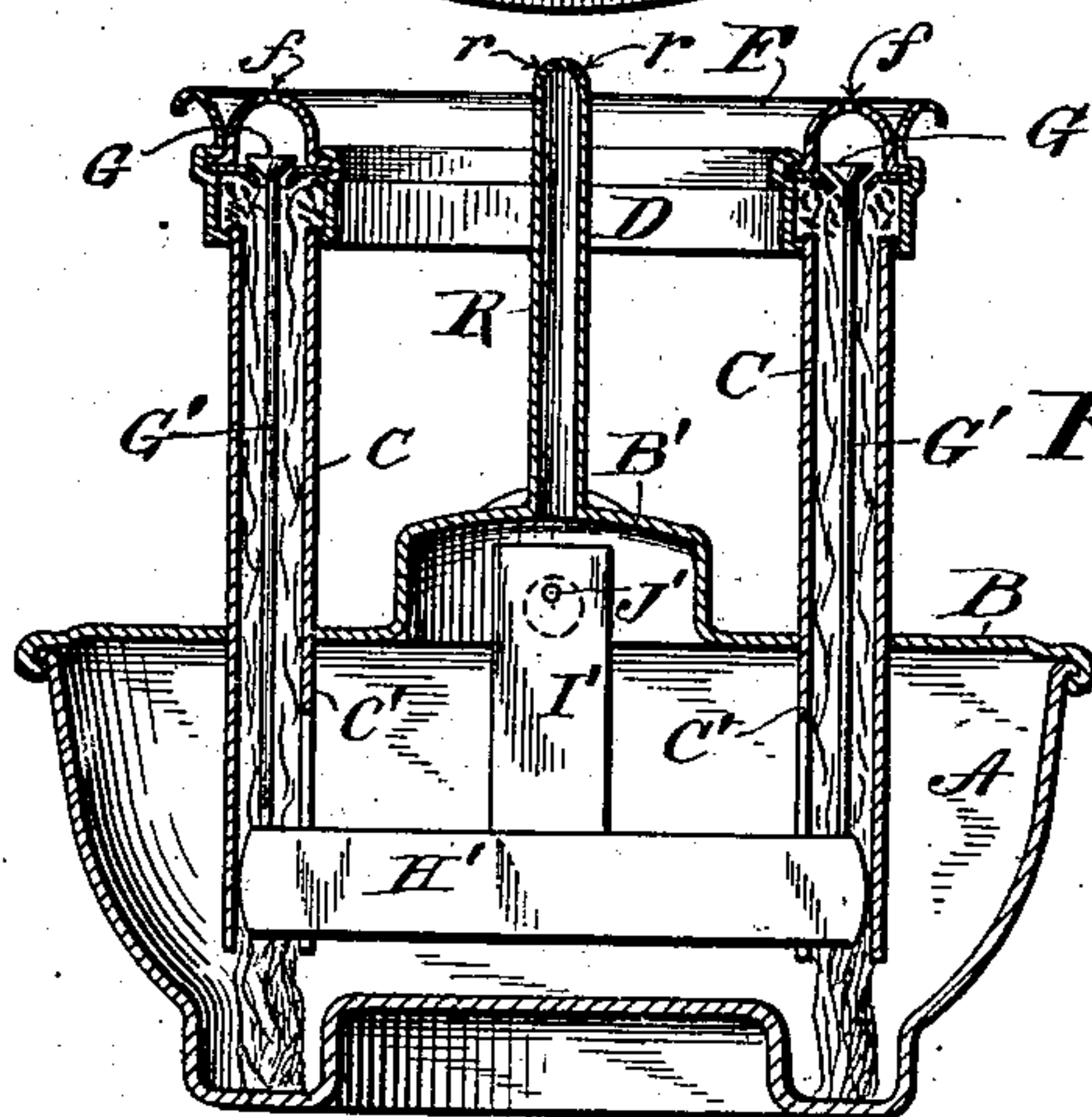


Fig. 5.

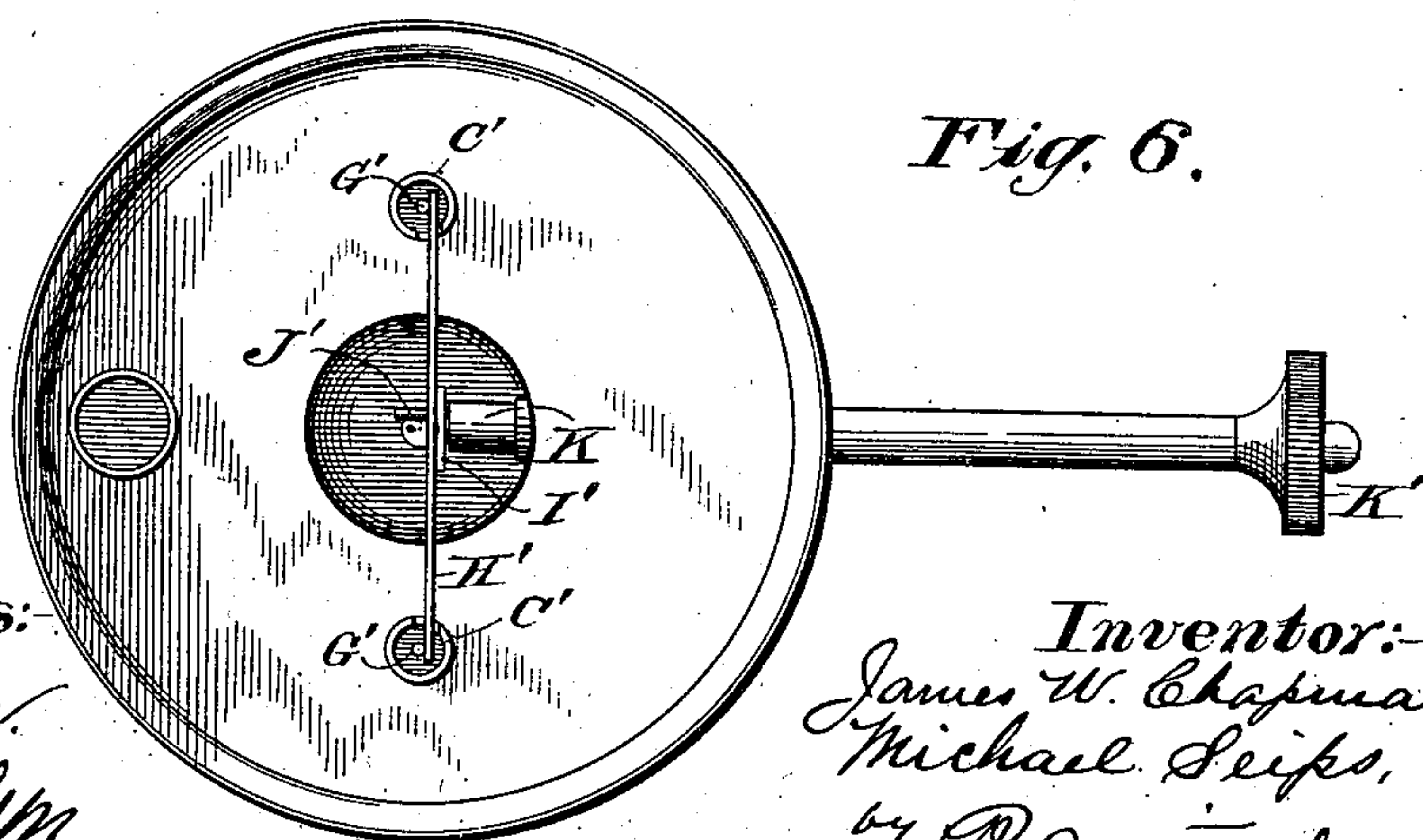


Fig. 6.

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UNITED STATES PATENT OFFICE.

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ALCOHOL-LAMP.

SPECIFICATION forming part of Letters Patent No. 724,543, dated April 7, 1903.

Application filed August 27, 1902. Serial No. 121,164. (No model.)

To all whom it may concern:

Be it known that we, JAMES W. CHAPMAN and MICHAEL SEIPS, citizens of the United States, residing at Meriden, in the county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Alcohol-Lamps, of which the following is a full, clear, and exact description.

Our invention relates to alcohol-gas stoves. The object of our invention is to provide a simple and effective means for generating gas and for regulating the supply to the burner, so that the flame may be varied and controlled at will.

In the drawings, Figure 1 is a side elevation of one form of lamp embodying our invention. Fig. 2 is a vertical section of the same. Fig. 3 is a vertical section similar to that shown in Fig. 2, excepting that it is taken in a plane at right angles thereto. Fig. 4 is a plan view of another form of lamp embodying our invention. Fig. 5 is a vertical sectional view of the same. Fig. 6 is a projection of the upper part of the same lamp looking up from the inside.

A is a font or reservoir for the liquid fuel, alcohol, or other suitable gas-generating element. B is a suitable cover therefor.

C C are wick-tubes leading up from the lamp-font to a tube or hollow ring D, in which one or more gas-passages E E are provided. Above the ring D is a gas-space, formed by an annular hood F, in which a series of fine perforations *f* are arranged for the purpose of permitting the gas to pass out of said gas-space to the flame.

G is a valve for the gas-passage E in the ring D.

G' is a valve-stem for each valve G, two being shown.

H is a bar connecting the valve G' G'.

I is a suitable connection between the bar and the crank-pin J of a controller K, the latter being preferably provided with a suitable handle K'. Each valve-stem G' passes down through the ring D and the tube C. A means is thus provided for operating the valves G G. A wick L leads from the chamber A to the ring D.

M is a suitable wick-like filling within the ring D, as best seen in the sectional view, Fig. 3.

The wicks L convey the alcohol or burning fluid up to the wick-like filling M within the ring D. This wick-like filling M holds the alcohol in suspension. From the alcohol within the ring D gas is generated, which in operation flows out through the passage or passages E E when the valves are opened, thence into the gas-space under the hood F, and out through the small perforations *f*. The ring D thus acts as a gas-generating chamber. To start the lamp or stove, heat is applied beneath the ring D until sufficient gas is generated to light above the holes *f*.

In the form of lamp shown in Figs. 1, 2, and 3 a primer or starting-lamp is provided. N is a wick adapted to convey alcohol or the burning fluid to the starting-lamp O, located underneath the generating-ring. P is a cap for the starting-lamp O. In operation the cap P is removed or turned back and the starting-lamp is lighted. The heat from this lamp raises the temperature of the alcohol within the chamber of the ring D and gas is given off, which passes up through the passages E in a quantity controllable by the valves G G. The gas may then pass out through the small openings *ff* in the hood F to supply the flame. The quantity of gas passing out from the generating-chamber and into the gas-space underneath the hood F may be varied and controlled by turning the handle K'. This turning of the handle K' imparts through the connections before referred to a movement to the valves G. Manifestly this is simply one convenient form of mechanical movement, and it should be understood that the same is capable of many variations.

In the first form of lamp shown in Figs. 1, 2, and 3 guides Q Q are provided within the lamp-font to hold the valve-rods G' in the proper position. When the gas has been generated by the starting-lamp so that the flame will burn above the hood F, the starting-lamp O may be extinguished—for instance, by placing the cap P over the flame.

If desired, the starting-lamp O may constitute a removable stopper as indicated, for example, for the purpose of refilling the lamp-font.

5 Obviously it is not essential to the invention that the starting-lamp O be employed. The ring D might be heated by other means. The provision of a starting-lamp insures an
 10 ever-ready and convenient means for starting the generation of gas. There is the disadvantage, however, that the operator may neglect to extinguish the primer-flame when the lamp or stove has been started, in which
 15 event unnecessary heat is applied to the generator-chamber D. In the form of lamp shown in Figs. 4, 5, and 6 it is intended that it shall be started by applying a suitable
 20 match or taper underneath the ring D, which is quite sufficient for all ordinary cases. In this form of lamp it will be noted that the tubes C C have been extended down into the chamber or font A. The extensions C' C'
 25 are then slotted on the inner edges to afford guideways for the ends of the bar H', connecting the valve-rods G' G'. The crank-pin J' is formed integral with the end of the controller-rod K by milling it down. The connecting-rod I' is pivoted to the bar H', and
 30 thus a simple and effective means of operation is provided for the valves E E.

The distance of the generating-chamber D from the font A ordinarily prevents the heating of the fluid in the font. Gas is, however, sometimes generated here in small
 35 quantities and is sometimes forced back from the generating-chamber D by the sudden closing of the valves E E. We have therefore provided an auxiliary outlet or escape through the tube R, having holes r r at the
 40 upper end. This tube R is inserted in the top of the dome-like portion B' of the cover B. Any gas passing out in this manner will be lighted at the top by the flame there and will die out as soon as the pressure becomes
 45 normal.

It has been found that by these constructions and obvious modifications thereof the size of the flame may be readily varied to suit the desires of the user. When it is desired to extinguish the flame above the hood
 50 F, it is merely necessary to move the valves G G sufficiently to close the gas-passages E E.

In the use of the word "alcohol" we intend to include other spirits or liquid fuels that
 55 are available in lamps or heaters of this character.

What we claim is—

1. In a fluid-vapor lamp, a font, a superposed horizontal hollow ring forming a generating-chamber, means for conducting fluid
 60 from the font to the chamber, an outlet from said chamber forming a valve-seat, a valve therefor, and a perforated hood located above said chamber and forming a gas-expansion space, substantially as described.
 65

2. In a fluid-vapor lamp, a font, a superposed hollow ring forming a generating-cham-

ber, means for conducting fluid from the font to the chamber, an outlet from said chamber forming a valve-seat, a valve therefor, and a perforated hood located above said chamber and forming a gas-expansion space, and a controller-rod for said valve, substantially as described. 70

3. In an alcohol-lamp, a font, a hollow tube-like ring, a connection between the font and the ring, means for conveying fluid from the font to said ring, means for holding it therein, an auxiliary means for heating the ring to generate gas, a gas-outlet for said ring, a hood forming a gas-space above said outlet, a perforation therein, and means for varying the size of the gas-passage through said outlet from said ring to the under side of said hood. 75 80 85

4. An alcohol-lamp having a lamp-font, tubes leading therefrom, wicks therein, an annular hollow ring connected with said tubes, a wick-like material therein, said ring having a gas-outlet passage and means for closing or controlling the size of the gas-passage, a hood over said ring and having perforations. 90

5. An alcohol-lamp having a font, a superposed hollow annular ring, a tube connecting said font with said ring, wick-like material in said ring and tube, a gas-passage in one of said parts, a gas-space above the ring, a hood above said gas-space, perforations therein, and means for varying and controlling the amount of gas passing from the aforesaid ring to said gas-space. 95 100

6. An alcohol-lamp, having a font, a wick-tube leading therefrom, a hollow gas-generating ring connected therewith, a wick-like material in said tube and ring, a gas-passage, a hood above said ring, a valve for said passage and an operating-handle and means of connection between said operating-handle and said valve, substantially as described. 105 110

7. A liquid-vapor lamp consisting of a liquid-receptacle, an annular gas-generating chamber spaced apart therefrom and having a gas-outlet, a valve therefor, a perforated hood above said lamp forming a gas-space, said receptacle also having an auxiliary gas-outlet. 115

8. A liquid-vapor lamp comprising a liquid-receptacle, a gas-generating chamber having gas-outlets, tubes connecting said generating-chamber with the said liquid-receptacle and extending into the latter, valves for said gas-outlets having valve-stems operating in said tubes, a connecting-bar carrying said valve-stems, the lower end of said tubes being slotted to form guideways for said connecting-bar and means for controlling the position of said connecting bar and valves. 120 125

9. A liquid-vapor lamp comprising a liquid-receptacle, a gas-generating chamber having gas-outlets, tubes connecting said generating-chamber with the said liquid-receptacle and extending into the latter, valves for said gas-outlets having valve-stems operating in 130

said tubes, a connecting-bar carrying said valve-stems, the lower end of said tubes being slotted to form guideways for said connecting-bar, a controller-shaft, a pin carried thereby and a connecting-rod from said pin to said connecting-bar.

10. A liquid-vapor lamp comprising a liquid-receptacle, a gas-generating chamber having gas-outlets, tubes connecting said generating-chamber with the said liquid-receptacle and extending into the latter, valves for said gas-outlets having valve-stems operating in said tubes, a connecting-bar carrying said valve-stems, the lower end of said tubes being slotted to form guideways for said connecting-bar and means for controlling the position of said connecting-bar and valves, said liquid-receptacle having an auxiliary gas-outlet.

11. A liquid-vapor lamp comprising a liquid receptacle, a gas-generating chamber having gas-outlets, tubes connecting said generating-chamber with the said liquid-receptacle and extending into the latter, valves for said gas-outlets having valve-stems operating in said tubes, a connecting-bar carrying said valve-stems, the lower end of said tubes being slotted to form guideways for said connecting-bar, a controller-shaft, a pin carried thereby and a connecting-rod from said pin to said connecting-bar, said liquid-receptacle having an auxiliary gas-outlet.

12. A liquid-vapor lamp comprising a liquid-receptacle, a gas-generating chamber, tubes connecting the same, said chamber having gas-outlets, valves therefor, means for operating said valves, a perforated hood above said chamber forming a gas-space, an auxiliary tube carried by said liquid-recep-

tacle and having gas-outlets substantially on a plane with the perforations in said hood.

13. A liquid-vapor lamp comprising a liquid-receptacle, a gas-generating chamber having gas-outlets, valves therefor, tubes projecting downward into said liquid-receptacle and providing passages for the stems of said valves, a connecting-bar, the lower end of said tubes being slotted on the inner edge to provide guideways for said bar and means for operating said bar and valves.

14. A liquid-vapor lamp comprising a liquid-receptacle, a gas-generating chamber having gas-outlets, valves therefor, tubes projecting downward into said liquid-receptacle and providing passages for the stems of said valves, a connecting-bar, the lower end of said tubes being slotted on the inner edge to provide guideways for said bar and means for operating said bar and valves and an auxiliary tube carried by said liquid-receptacle projecting upward and having gas-outlets in substantially the plane of a flame arising from gas passing through the gas-outlets from said generating-chamber.

15. An alcohol-lamp comprising a liquid-receptacle, a hollow ring forming a gas-generating chamber having a gas-outlet, a valve for said outlet, a tube connecting said receptacle and said ring, a perforated hood above said ring said valve being inclosed by some of said parts.

Signed at Meriden, Connecticut, this 25th day of August, 1902.

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Witnesses:

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