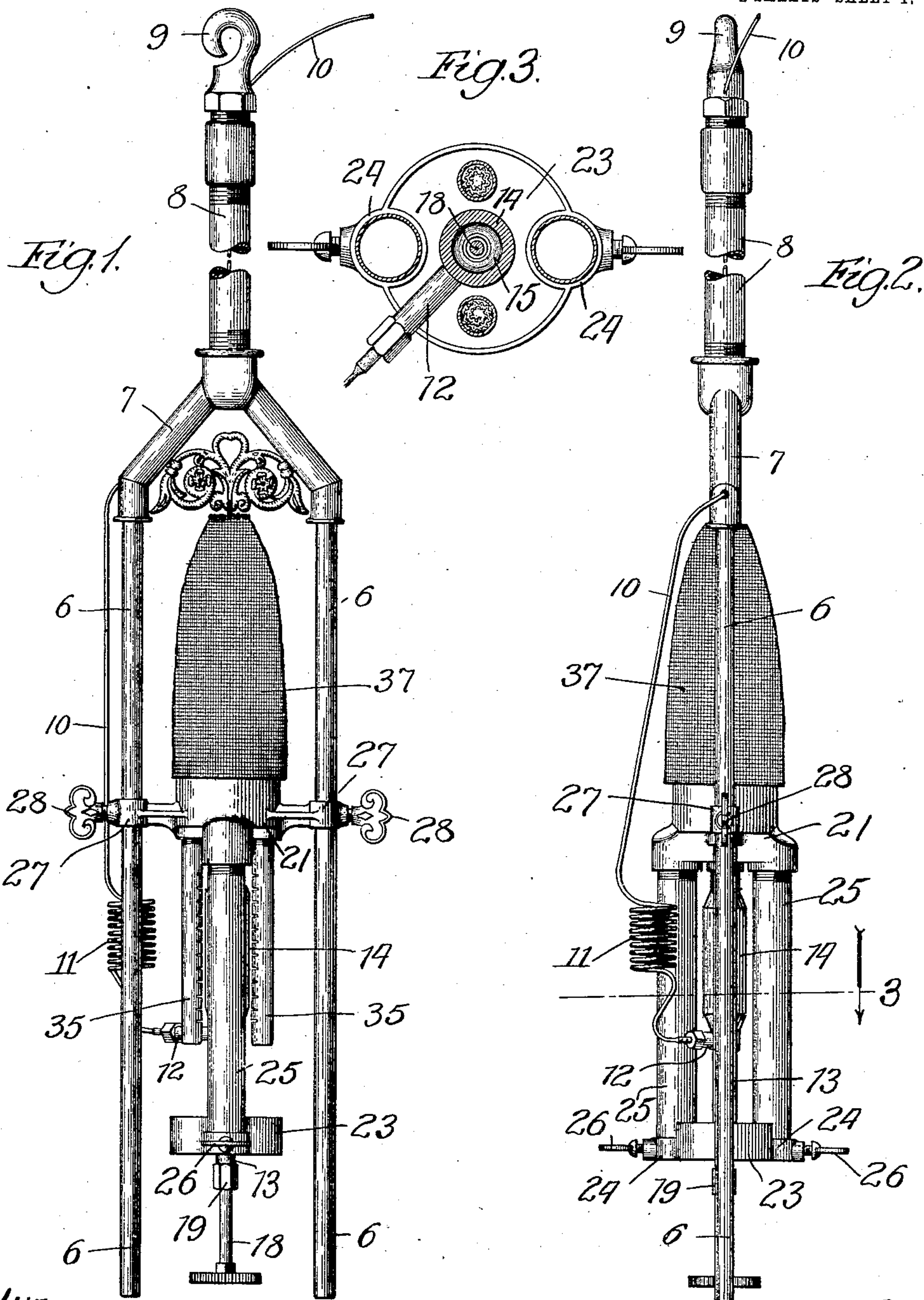


H. H. EASON.
HYDROCARBON INCANDESCENT LAMP.
APPLICATION FILED NOV. 16, 1908.

914,709.

Patented Mar. 9, 1909.

2 SHEETS—SHEET 1.



Witnesses:
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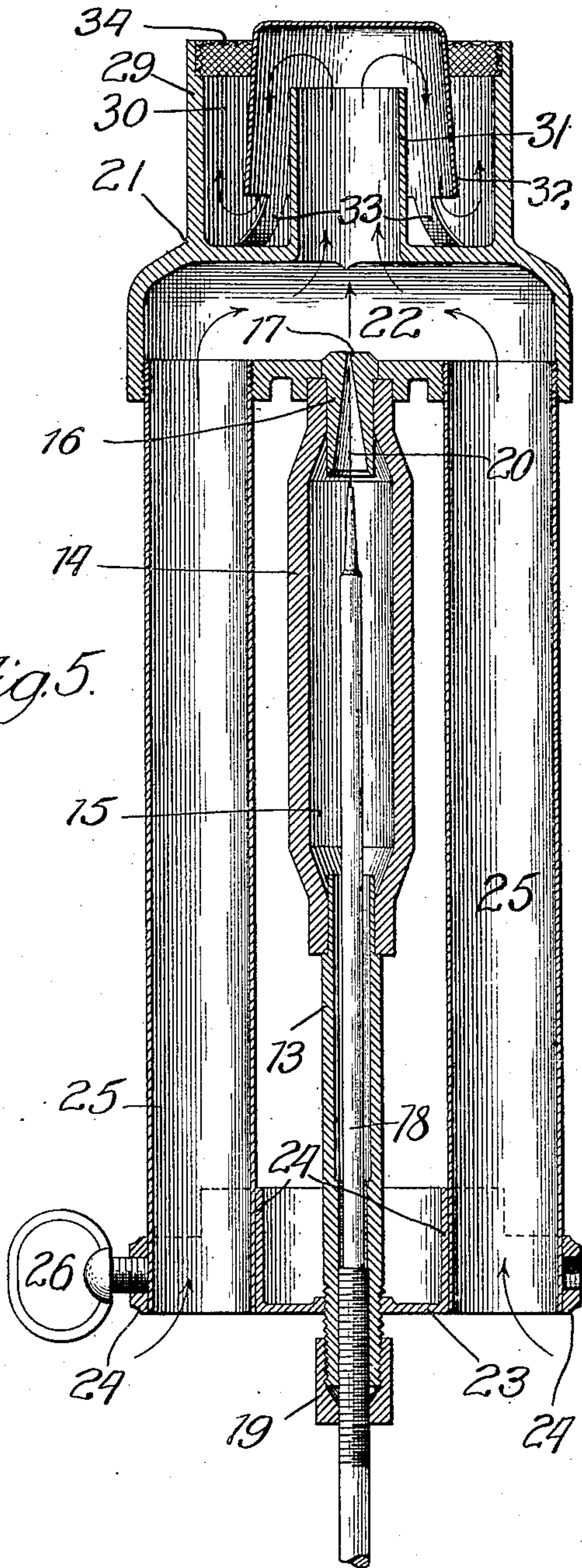
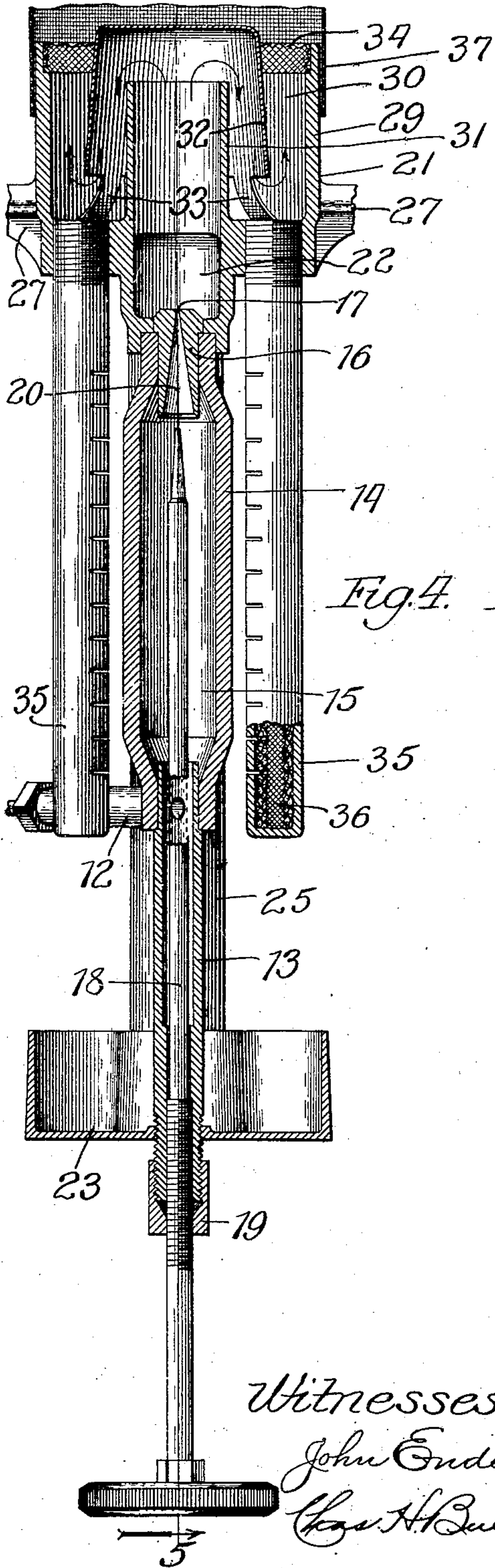


Fig. 4. Fig. 5.

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UNITED STATES PATENT OFFICE.

HARTT H. EASON, OF CHICAGO, ILLINOIS.

HYDROCARBON INCANDESCENT LAMP.

No. 914,709.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed November 16, 1908. Serial No. 462,758.

To all whom it may concern:

Be it known that I, HARTT H. EASON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Hydrocarbon Incandescent Lamps, of which the following is a specification.

This invention relates to improvement in mantle-incandescing, vapor-burning lamps of the type in which hydrocarbon oils, such as kerosene, or gasolene are fed under pressure.

My object is to provide a lamp of this type of simple and economical construction, capable of producing a particularly brilliant illumination, as for store-lighting purposes, and which will be odorless in use, require little attention and be easily maintained at the highest efficiency of its lighting power.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a broken front elevation of a hanging lamp constructed with my improvements; Fig. 2, a broken side elevation of the same; Fig. 3, an enlarged plan section on line 3 in Fig. 2; Fig. 4, an enlarged partly broken sectional elevation taken on line 4 in Fig. 2; and Fig. 5, a broken sectional view taken on line 5 in Fig. 4.

The hanger portion of the lamp comprises a pair of parallel rods 6, 6, depending from a yoke 7, which in turn is secured to a pipe 8 provided at its upper end with a hook 9. Oil under pressure is conducted to the burner through a hollow wire 10 leading from a suitable source of supply (not shown), and the wire passes through the pipe 8 and one leg of the yoke 7, terminating in a coil 11. At its end the hollow wire is secured to a nipple 12 projecting through to the interior of a pipe 13 depending from a vertically disposed tubular generator 14 containing a vaporizing chamber 15. Set into the upper end of the generator is a nipple 16 having a downwardly flaring opening through it terminating at its upper end in a small discharge orifice 17. A spindle 18 passes through the pipe 13 and generator 14 having a threaded engagement with the lower end of the pipe 13 where a stuffing-box 19 is arranged to prevent the escape of oil from the pipe. The spindle is equipped at its upper tapered end with a needle 20 for use in cleaning the orifice.

21 is a burner-head having a horizontal mixing chamber 22 in the center of which the orifice 17 discharges.

An alcohol cup 23 provided at opposite sides with hollow bosses or sleeves 24 is screwed to the pipe 13.

Depending from opposite end portions of the mixing chamber 22 are air-supply tubes 25. The bosses 24 fit over the lower end portions of the tube 25.

It will be seen from the drawing that the alcohol cup 23, pipe 13 and generator 14 are secured together, the upper end of the generator fitting into an annular socket in the under side of the burner-head around the nipple 16. These parts are held in position by thumb-screws 26 passing through the bosses 24 and engaging the tubes 25. If at any time it is desired to remove the said parts for the purpose of cleaning them, or otherwise, the thumb-screws 26 may be loosened and the parts withdrawn without disconnecting the hollow oil-supply wire 10, which is rendered elastic by its coil 11.

Integral with the burner-head 21 are oppositely extending arms 27 perforated to receive and slide upon the parallel rods 6 to which they may be secured in adjusted position by means of the thumb-screws 28. The head 21 is formed with an outer annular wall 29 surrounding an annular service-chamber 30.

31 is a tubular extension of the mixing chamber 22 forming the inner wall of the service-chamber and terminating some distance below the top of the wall 29.

32 is an inverted baffling-cup supported on legs 33 in the service-chamber. The cup is concentric with the wall 29 and tube 31; and fitting into the top of the wall is an annular burner-screen 34 filling out the space between the said wall and cup.

Secured to and depending from the burner-head are parallel sub-burner tubes 35 extending down opposite sides of the generator between the air-supply tubes, and each provided with a series of burner openings, or slits, on its inner side, as shown in Fig. 4. The sub-burners are closed at their lower ends and open at their upper ends into this service-chamber. Each of the sub-burners contains a coiled sheet 36 of wire cloth forming a screen extending from the lower end to a point above the upper slit or burner opening.

Suspended from the yoke 7 is a mantle 37, which at its lower end surrounds the wall 29 of the burner-head.

In operation, the burner is started in the usual way by pouring alcohol into the cup 23 and igniting it, to heat the generator. I prefer to locate the cup 23 some distance below the generator, as shown, to cause the upper or hottest part of the alcohol flame to envelop the generator, thereby causing the latter to become heated very quickly. Oil under pressure is then allowed to flow through the hollow wire 10 and as it enters the generator, it is quickly vaporized and in expanding rises under pressure through the orifice 17 to the mixing chamber 22 where it mingles with air entering through the supply-tubes 25. The air and vapor become thoroughly mixed in the tube extension 31 and under the baffling cup 32 and the mixture flows thence into the service-chamber and upward in an annular stream through the screen 34 where it is ignited and plays in the form of an annular flame against the mantle. A comparatively small proportion of the mixture descends under pressure from the service-chamber into the sub-burners 35 and is ignited at the openings therein to play against the generator and maintain the latter at the proper vaporizing temperature.

The coiled screens 36 in the sub-burners fill out the latter sufficiently to prevent all danger of back-firing to the service-chamber. The annular screen 34 prevents back-firing of the upper flame.

The connection of the burner-head and parts supported thereby with the rods 6 permits the burner-head to be adjusted for mantles of different lengths and also permits the burner to be removed when desired without disturbing the mantle.

My improved burner constructed of parts assembled as shown and described has great mantle-incandescing, and therefore illuminating, power, while consuming comparatively little oil. The parts may be readily disconnected from each other when desired and as readily replaced, all without danger of injuring the mantle, and the construction renders the burner not only perfectly safe but easy to start and maintain at its highest efficiency.

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

1. In a hydro-carbon incandescent lamp, the combination of a mixing chamber having a central upwardly projecting tubular extension and downwardly extending air-supply tubes at opposite ends, a tubular generator centrally below said chamber and communicating therewith through a small orifice, means for supplying oil under pressure to the generator, an annular service-chamber surrounding said tubular extension, sub-burner tubes depending from the serv-

ice-chamber at opposite sides of the generator, a cup-shaped baffle extending over said tubular extension, and an annular burner-screen surrounding said baffle and covering the service-chamber.

2. In a hydro-carbon incandescent lamp, the combination of a mixing chamber having a central upwardly projecting tubular extension and downwardly extending air-supply tubes at opposite ends, a tubular generator centrally below said chamber and communicating therewith through a tapering orifice, a cleaning needle for the orifice extending through the generator, means for supplying oil under pressure to the generator, an annular service-chamber surrounding said tubular extension, sub-burner tubes depending from the service-chamber at opposite sides of the generator, a cup-shaped baffle extending over said tubular extension, and an annular burner-screen surrounding said baffle and covering the service-chamber.

3. In a hydro-carbon incandescent lamp, the combination of a mixing chamber having a central upwardly projecting tubular extension and downwardly extending air-supply tubes at opposite ends, a tubular generator centrally below said chamber and communicating therewith through a tapering orifice, a tube depending from the generator, a cleaning needle for the orifice threaded into said tube and extending through the generator, means for supplying oil under pressure to the generator, an annular service-chamber surrounding said tubular extension, sub-burner tubes depending from the service-chamber at opposite sides of the generator, a cup-shaped baffle extending over said tubular extension, and an annular burner-screen surrounding said baffle and covering the service-chamber.

4. In a hydro-carbon incandescent lamp, the combination of a mixing chamber having a central upwardly projecting tubular extension and downwardly extending air-supply tubes at opposite ends, a tubular generator centrally below said chamber and communicating therewith through a tapering orifice, a tube depending from the generator, a cleaning needle for the orifice threaded into said tube and extending through the generator, means for supplying oil under pressure to the generator, an annular service-chamber surrounding said tubular extension, sub-burner tubes depending from the service-chamber at opposite sides of the generator, a cup-shaped baffle extending over said tubular extension, an annular burner-screen surrounding said baffle and covering the service-chamber, and an alcohol cup surrounding said depending tube below the sub-burner tubes and removably fastened to the air-supply tubes.

5. In a hydro-carbon incandescent lamp, the combination of a mixing chamber hav-

ing a central upwardly projecting tubular
extension and downwardly extending air-
supply tubes at opposite ends, a tubular gen-
erator centrally below said chamber and
5 communicating therewith through a small
orifice, means for supplying oil under pres-
sure to the generator, an annular service-
chamber surrounding said tubular extension,
sub-burner tubes depending from the serv-
10 ice-chamber at opposite sides of the gener-

ator, coiled screens in the subburner tubes,
a cup-shaped baffle extending over said
tubular extension, and an annular burner-
screen surrounding said baffle and covering
the service-chamber.

HARTT H. EASON.

In presence of—

J. G. ANDERSON,
R. A. SCHAEFER.