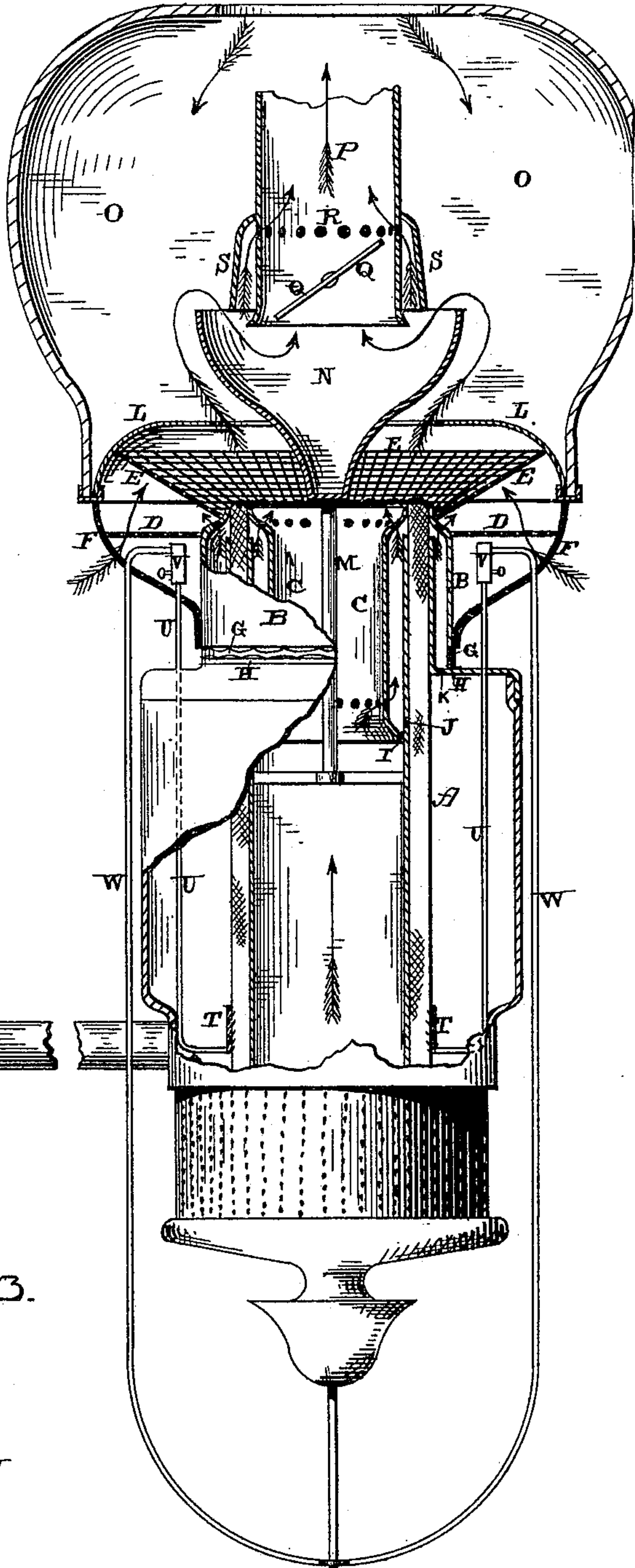
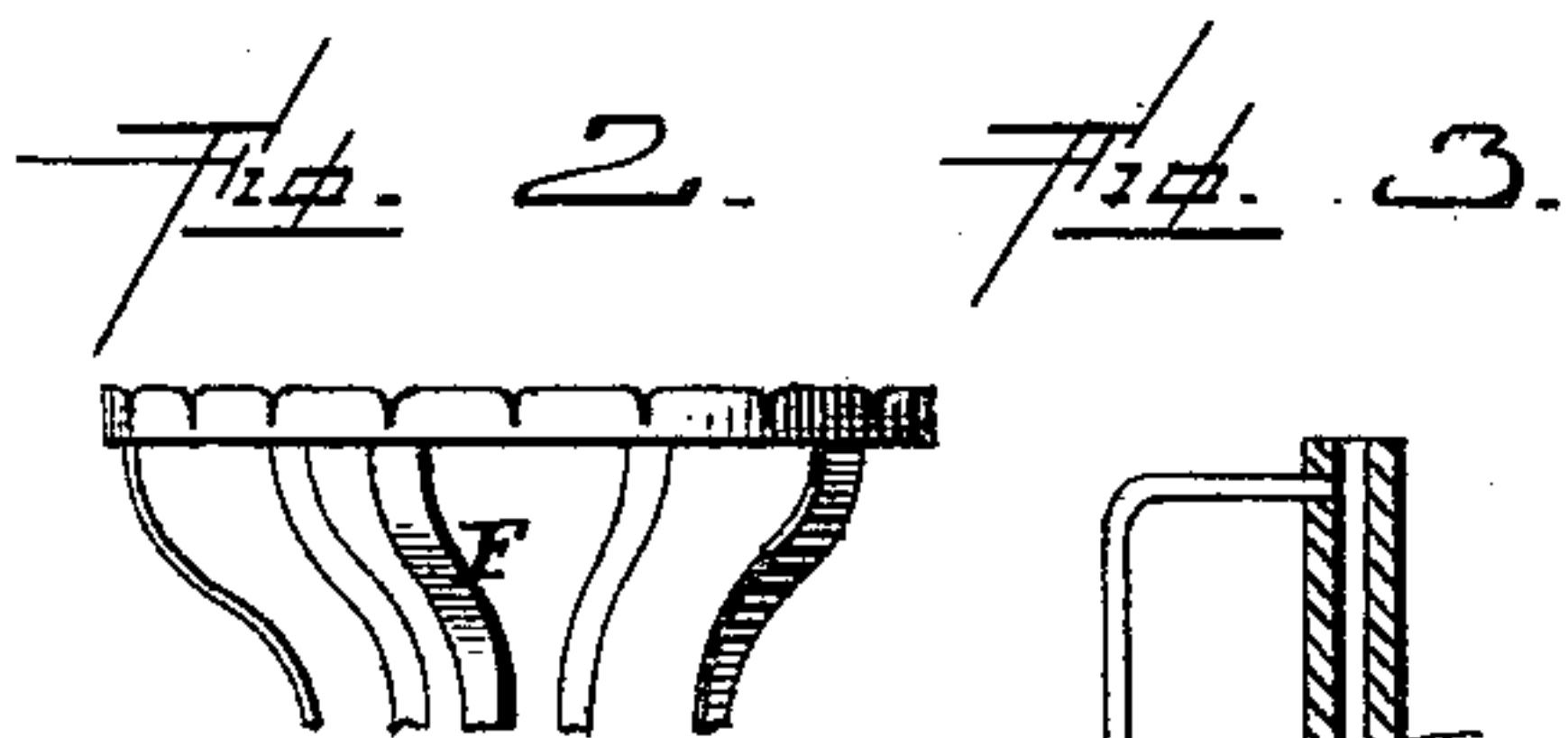
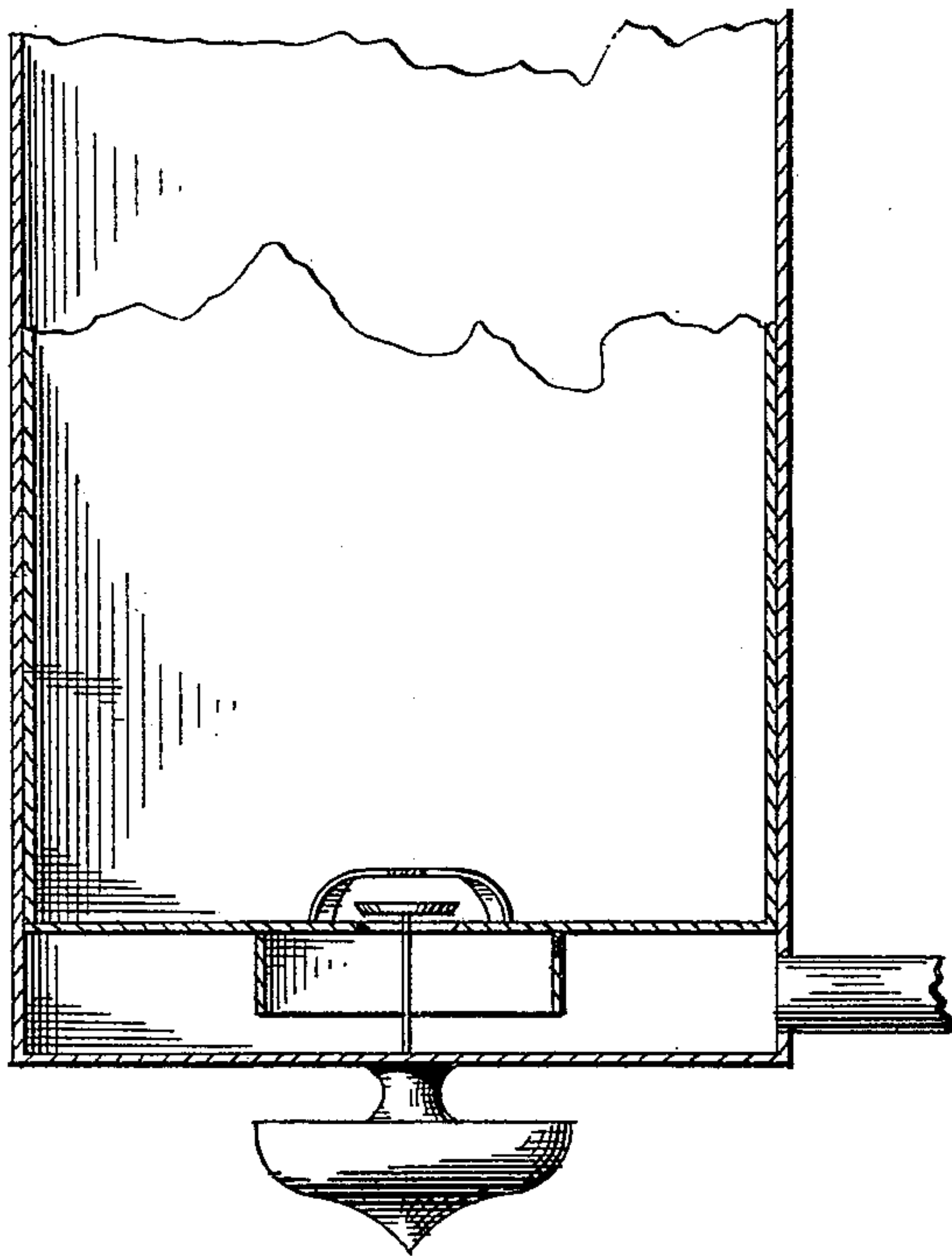
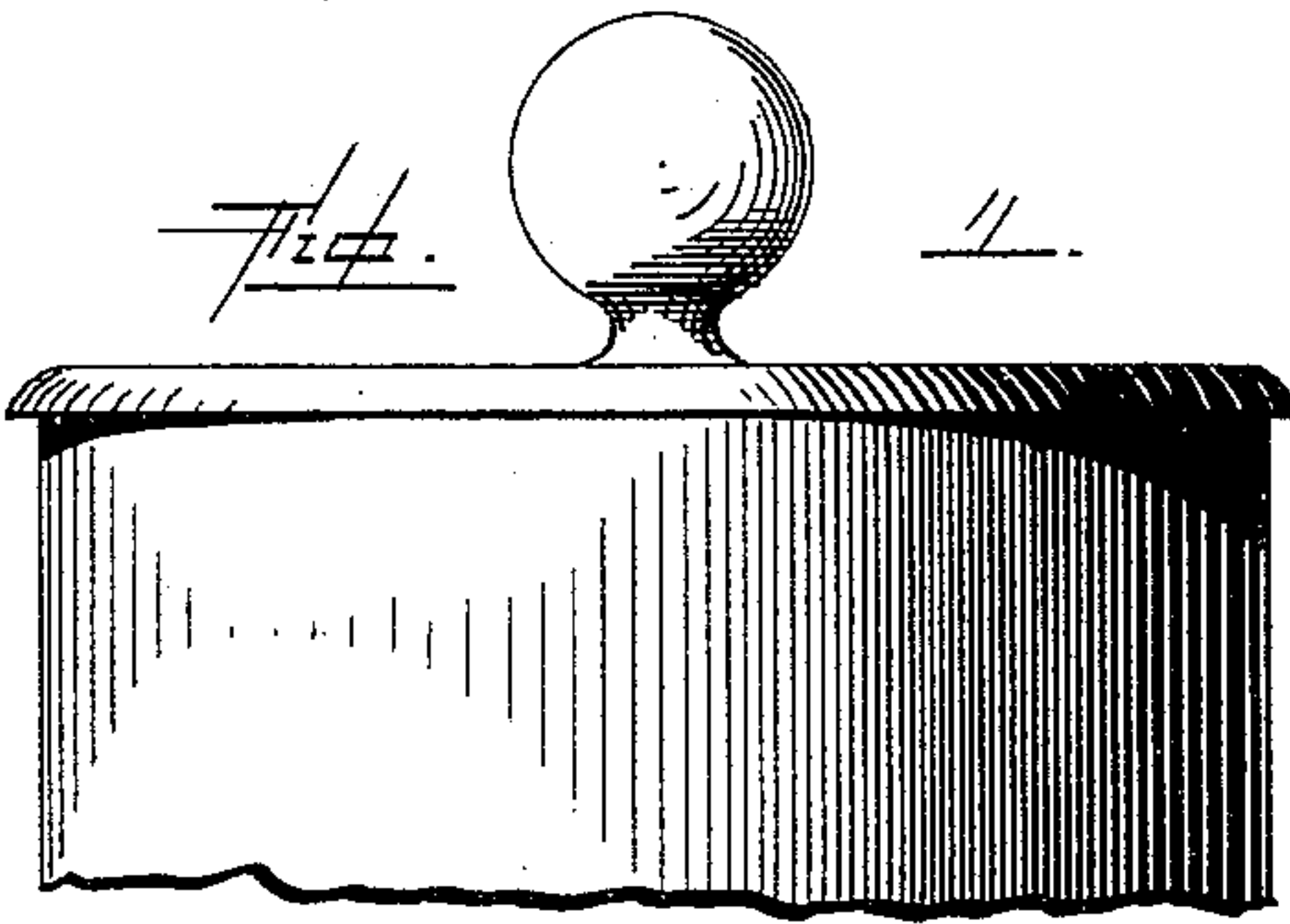


(No Model.)

Z. DAVIS.
LAMP.

No. 354,048.

Patented Dec. 7, 1886.



Witnesses.
L. B. Gardner
A. S. Pattison

Inventor.
Z. Davis,
per
J. A. Lehmann,
att'y.

UNITED STATES PATENT OFFICE.

ZEBULON DAVIS, OF CLEVELAND, OHIO.

LAMP.

SPECIFICATION forming part of Letters Patent No. 354,048, dated December 7, 1886.

Application filed May 6, 1886. Serial No. 201,318. (No model.)

To all whom it may concern:

Be it known that I, ZEBULON DAVIS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful
5 Improvements in 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 pertains to make and use it, reference being had
10 to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in lamps; and it consists in the arrangement and combination of parts, which will be more fully
15 described hereinafter, and specifically pointed out in the claims.

The object of my invention is to provide a flue which will carry off all products of combustion, and thus prevent the heat, smoke,
20 and odors from being discharged into the room, and to provide an auxiliary insulated wick-tube for the purpose of catching the heat, and thus preventing it from passing into the main body of the lamp to vaporize the oil,
25 and to provide a means for lengthening and shortening the wick-raising device, whereby the wick can be almost entirely consumed before it becomes necessary to replace it by another.

30 Figure 1 is a vertical section of a reservoir-lamp to which my invention is applied. Figs. 2 and 3 are details of the same.

Although my invention is here shown as applied to a reservoir or student's lamp, it is evident the improvements can be used in connection with center-draft lamps of any kind.

35 A represents a wick-tube; B C, the two parts of an auxiliary wick-tube, which is used in connection therewith. The upper portions of these two parts B C are inclined inward toward the wick with which they come in contact, and which parts B C rise a suitable distance above the wick-tube A. The outer portion, B, of the auxiliary wick-tube forms a
40 support for the perforated plates D E and the arms F of the chimney or globe support, as shown. The lower portion of the ends of the arms F of the chimney or globe supporting device are connected directly to the portion B, as shown in Fig. 1, so as to transmit all of the
50 heat that they receive directly to the portion B. This portion B rests upon a ring, G, which

has its edges corrugated, so as to present the smallest possible bearing surface to the parts to which it comes in contact, and which ring
55 rests upon the narrow non-conducting strip H, of asbestos or other suitable material. The ring G is made scalloped, as shown, so as to receive and transmit as little heat from the portion B as possible. As here shown, the ring
60 G, which is made of any suitable substance, is placed upon the non-conducting substance H; but, if so desired, the non-conducting substance H may be placed next to the portion B and raised directly upon the top of the ring. These
65 two portions G H serve to insulate the part B from the main body of the lamp, and thus prevent the transmitted heat from the part B from heating or vaporizing oil. Air passes freely between the lower edges of the portion B and
70 the ring G, and escapes through openings at the top of the portion B, as shown. This air serves to carry away the heat radiated from the heated surface, and thus not only assists
75 in keeping the parts cool, but to prepare the air for a more perfect combustion. The inner portion, C, of the auxiliary wick-tube is insulated at its lower end by a ring of any suitable non-conducting substance, I, so as to prevent it transmitting its heat to the wick tube
80 A. Through both the upper and lower ends of this portion C are preferably made suitable perforations, through which air may freely pass for the purpose of assisting in keeping the parts cool, and for heating the air, so as to
85 cause a more perfect combustion. Through the wick-tube A, just above the lower end of the portion C, is made a series of openings, J, through which any oil which escapes over the top of the inner portion of the tube A
90 flows back into the lamp; also, at the base of the outside portion of the tube is made a suitable opening, K, through which the oil which escapes over the wick-tube can run back into the lamp.

95 Secured to the upper end of the outside portion, B, of the auxiliary tube is a perforated plate, E, which is made conical in shape, and which extends from the wick-tube to the inner side of the cone L. This plate E is made perforated, so as to thoroughly break up and heat
100 the air which has already passed through the perforated plate D. Mounted upon a rod, M, which rises from the center of the central

draft-tube, is the flame-spreading device, N, which may either be made of the shape here shown or any other that may be preferred, and which rises a suitable distance upward into the globe or chimney O. This spreader is made hollow, and over the top of which the flame is drawn up by the upward current through the flue P, which is supported in position above the center of the spreader, and which extends away to any suitable flue or chimney for the purpose of carrying away all the products of combustion. Instead of the flame being extended upward above the top of the spreader N toward the side of the chimney or globe O, the flame rises just above the top of the spreader, and then dives down into the spreader and then rises into the flue P, which is provided with a valve, Q, for the purpose of regulating the draft. Above this valve Q is made a series of openings, R, and connected to the outside of the flue, above the openings R, is an angular chamber or smoke-bell, S, through which currents of air are always passing. The lower end of this bell or chamber S descends to a level or slightly above the lower end of the flue P, and serves to carry off smoke in case of variable drafts through the flue P, caused by high winds, for there is always a steady draft through the bell or chamber S, which is not affected by the damper. As here shown, the lower end of the flue P extends slightly below the level of the top of the spreader N; but the lower end of the flue may be raised upward to any desired distance. The more it is depressed into the spreader N the more the flame is made to descend into the spreader, and thus sharply define its outline. The edges of the flame being caused to descend into the spreader N by the draft through the flue P, the flame is sharply defined, and presents as even and brilliant an appearance as a flame of gas. As the draft is upward through the flue P, all smoke caused by turning the wick up too high, all odors, and much of the heat are carried off through the flue P, and thus ventilating the apartment instead of vitiating the air, as is done by lamps of ordinary construction. As is here shown, the globe or chimney O need not have a very great height, for the draft is rather downward through its top than upward, in the usual manner. This shape is also of little importance, as it serves more especially to protect the flame against any side currents of air.

The wick-raising device consists of a ring or band, T, which entirely surrounds the wick, and from which rise the two prongs or arms U, which have a series of perforations through their upper ends. Passed over the tops of these ends are the slides V, to which the upper ends of the bail W are loosely connected. The slides V are connected to the prongs U by means of the pins or other suitable devices, as shown. When the upper portion of the wick has been consumed, so that the bail W cannot any longer be operated from below on account of its ends coming in contact with the perforated

plate D, the slides V are lowered one or more holes upon the arms or prongs U, and then the bail can again be used to elevate the wick. In this manner the slides V are adjusted from time to time as the wick burns away, and thus the wick can be almost wholly consumed without renewal.

Having thus described my invention, I claim—

1. The combination, with an Argand lamp, of the hollow cone or spreader, into which the flame is made to pass, and the flue placed above the spreader and of a smaller diameter than the spreader, substantially as shown.

2. The combination, with an Argand lamp, of the hollow cone or spreader, and the flue placed above it and provided with a valve, the flame being made to pass down into the cone, substantially as described.

3. The combination, with an Argand lamp provided with a spreader, of a flue provided with a series of perforations, a bell or chamber connected to the flue above the perforations, and a damper placed in the flue below the perforations, substantially as specified.

4. The combination, with an Argand lamp, of the spreader for the flame, the cone provided with an opening at its center, the perforated plate or plates which surround the wick-tube, the flue through which the products of combustion pass, and a suitable support for the cone, substantially as shown.

5. In a lamp, the combination of the spreader N, which projects a suitable distance above the top of the wick-tubes, the flue through which the products of combustion pass, the cone having an opening at its center for the spreader and flame to pass through, the conical perforated plate E, which extends from the top of the auxiliary wick-tube to the inner side of the cone, the perforated plate D, and the support F for the cone, substantially as described.

6. In an Argand lamp, the combination of the central wick-tube with an auxiliary wick-tube composed of two separate pieces, which are applied to opposite sides of but separated from the main tube, and which auxiliary tube extends above the top of the main tube, and bears against opposite sides of the wick, substantially as described.

7. The combination of the main wick-tube, and the auxiliary wick-tube, which is connected thereto and insulated therefrom, the upper ends of the auxiliary tube being made to extend above the main wick-tube for the purpose of receiving the heat from the flame, substantially as specified.

8. In a lamp, the combination of the main wick-tube, and the auxiliary wick-tube connected thereto and insulated therefrom, the upper ends of the auxiliary tube being made to extend above the main wick-tube, and provided with perforations for the air to pass through at both ends, substantially as shown.

9. The combination of the main wick-tube, the auxiliary wick-tube, which has its upper end to project above the main tube, the scal-

loped or perforated ring G, and suitable non-conducting material, H, substantially as described.

5 10. The combination, with the wick-raising device having the upper ends of its prongs or arms perforated, of the slides and the bail, the slides being connected both to the bail and to the arms or prongs of the wick-raising device, substantially as set forth.

10 11. The combination, with an Argand lamp provided with a spreader for the flame, of the flue for carrying off the products of com-

bustion, and which is provided with a series of perforations at a suitable distance above its lower end, and the chamber or bell, which is 15 connected to the flue above the openings, substantially as specified.

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

ZEBULON DAVIS.

Witnesses:

A. S. PATTISON,
L. L. BURKET.