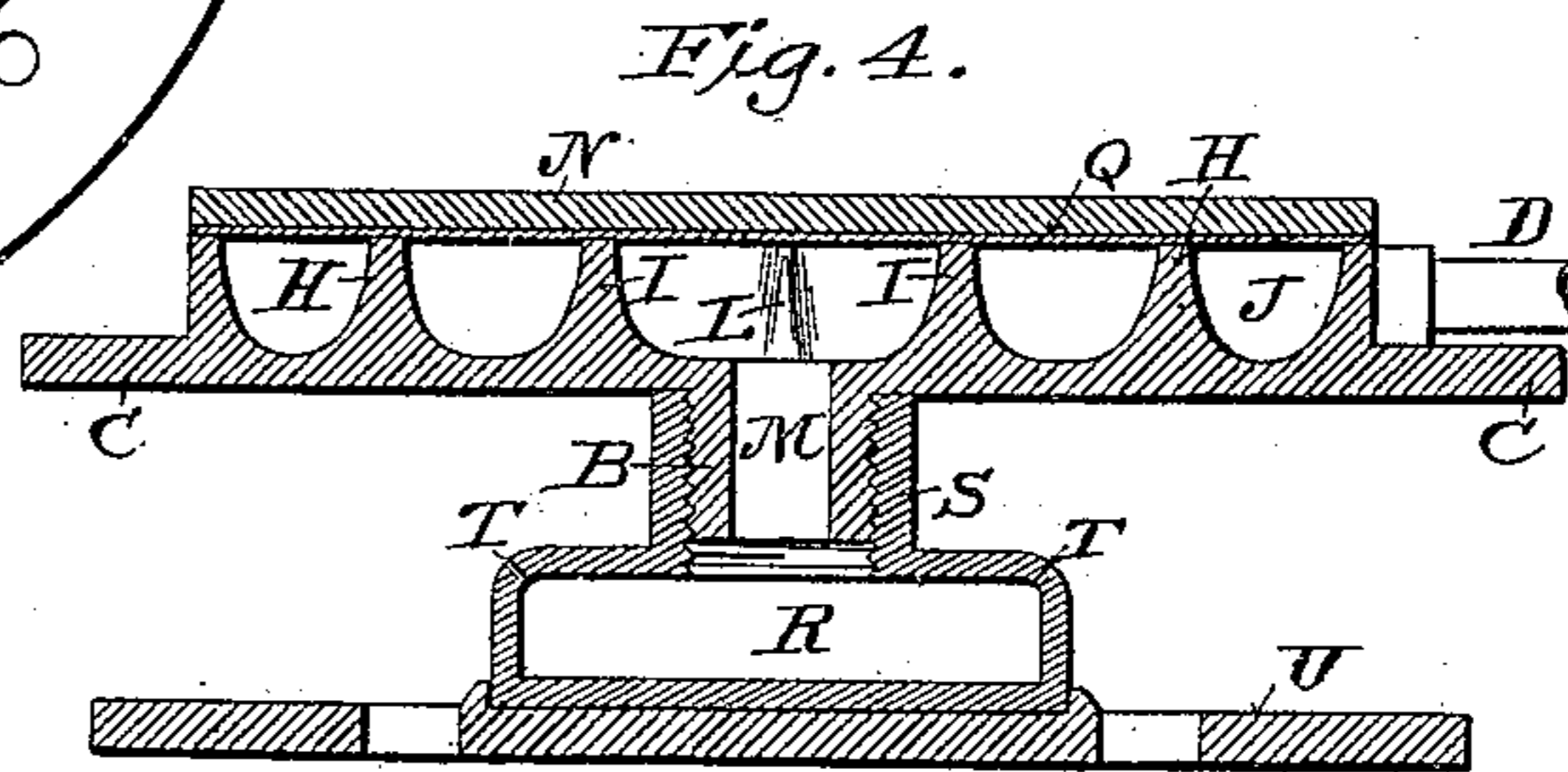
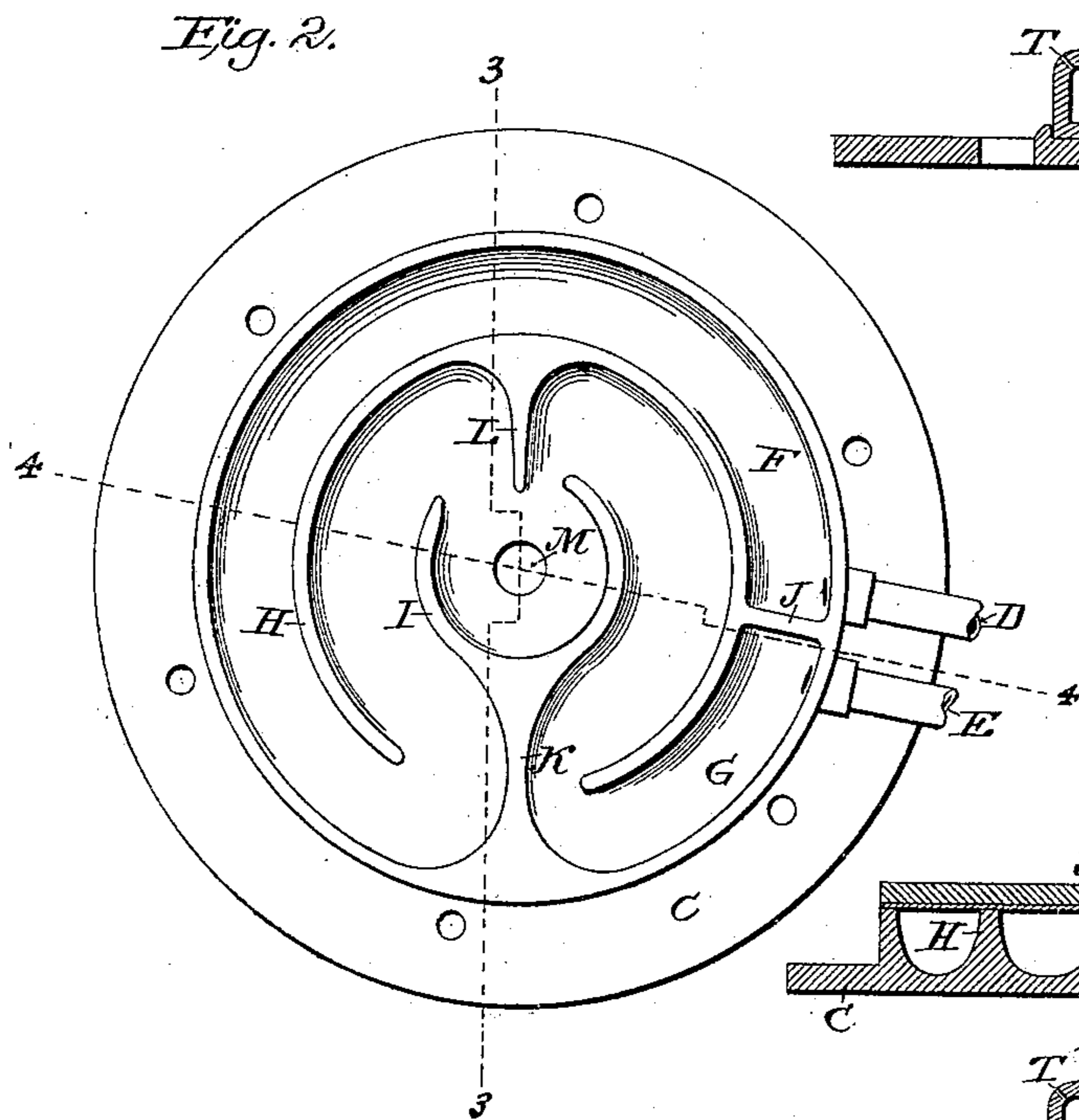
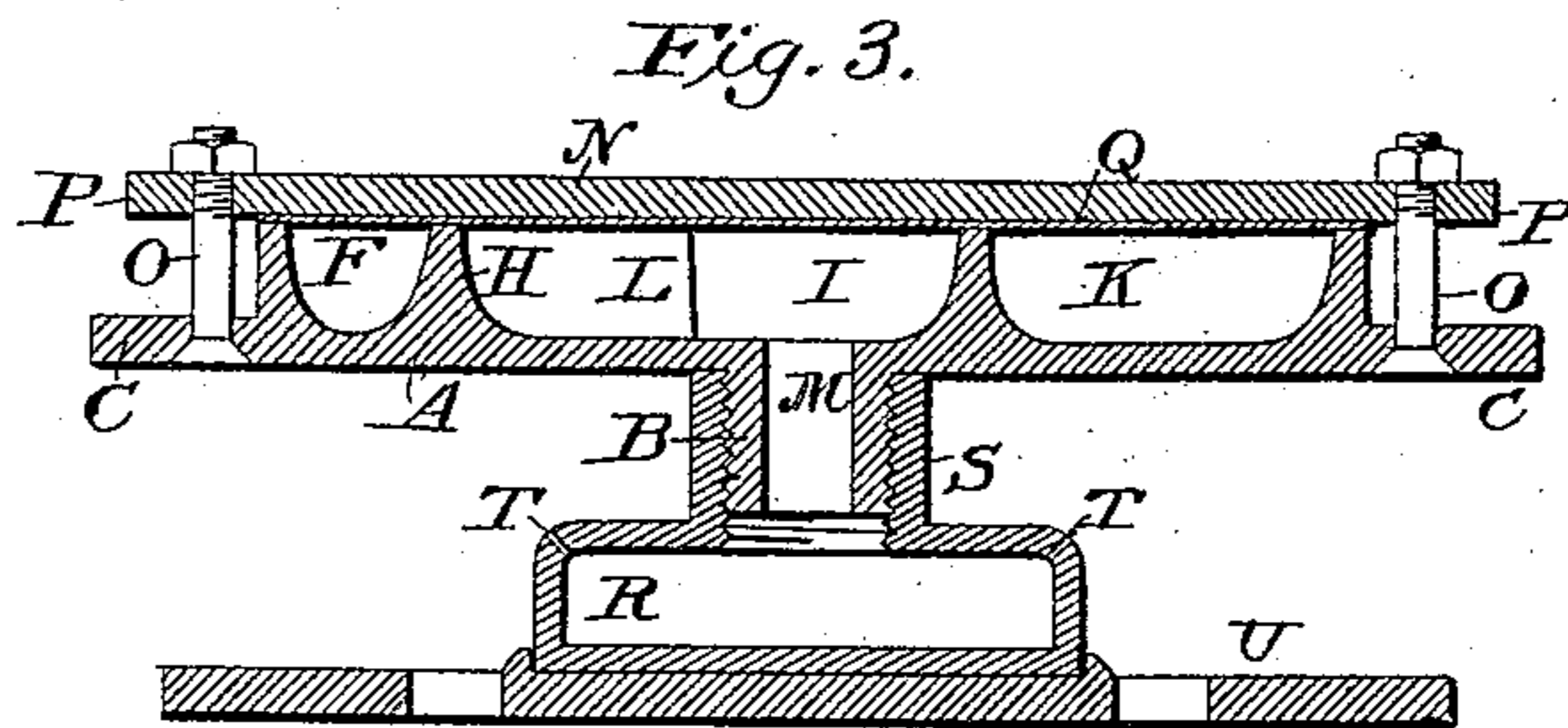
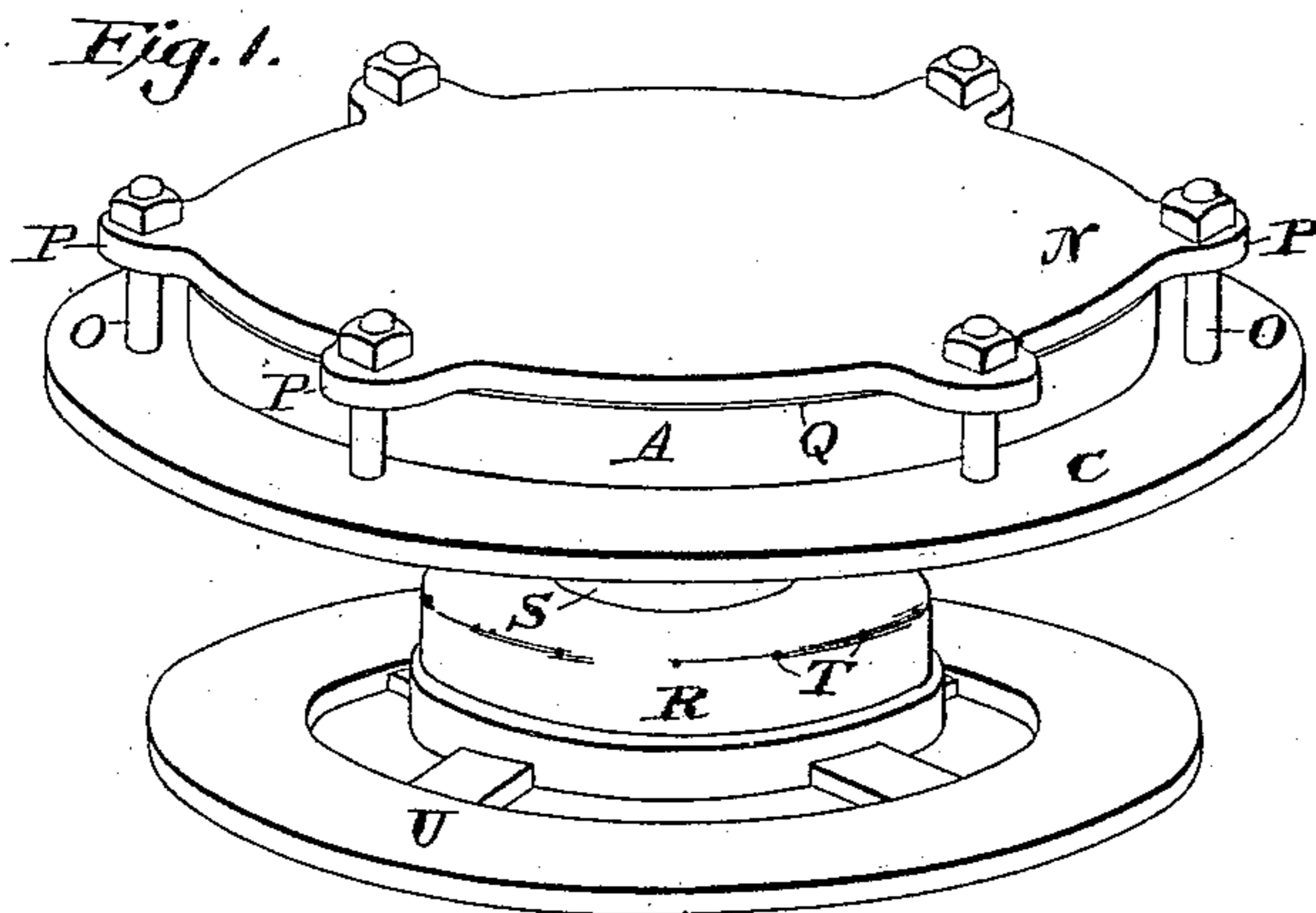


(No Model.)

J. DARBY.
HYDROCARBON BURNER.

No. 397,784.

Patented Feb. 12, 1889.



Witnesses:

James F. DuHamel
William H. Shipley.

Inventor:

Joseph Darby,
by Dodge & Sons,
Attys.

UNITED STATES PATENT OFFICE.

JOSEPH DARBY, OF SPRINGFIELD, OHIO, ASSIGNOR OF ONE-FOURTH TO
ELIJAH F. DARBY, OF SAME PLACE.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 397,784, dated February 12, 1889.

Application filed February 25, 1888. Serial No. 265,282. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DARBY, of Springfield, in the county of Clark and State of Ohio, have invented certain new and useful
5 Improvements in Hydrocarbon-Burners, of which the following is a specification.

My invention relates to that class of burners or retorts in which oil and water or steam are converted into a vapor or gas.

10 In the accompanying drawings, Figure 1 is a perspective view of my improved burner in its preferred form; Fig. 2, a top plan view with the cap-plate removed; Figs. 3 and 4, vertical sectional views taken at right angles
15 to each other.

A indicates the main retort, which will advantageably be formed of a single casting, the said retort having on its under face a depending nipple, B, threaded externally, and it is provided, further, with a laterally-extending
20 flange, C, as clearly shown in all the figures.

Communicating with the inlets D and E are the oil and water channels F and G, which are separated from each other by the concentric walls or flanges H and I.
25

In order to further separate the passages and prevent the mingling of the oil and water, the wall H is connected with the outer wall of the retort A by means of a flange, J, which joins the wall of the retort at a point
30 between the inlets D and E, as clearly shown in Fig. 2.

The central curved wall, I, is likewise connected with the outer wall of the retort A by means of a web or flange, K, as shown in Figs. 2 and 3, the web extending inward between the separated ends of the circular wall H. A radial web or flange, L, projects from the inner face of the curved wall H inward between
40 the separated ends of the curved wall I, and serves to conduct the mingled oil and water into the central discharge-outlet, M, in the bottom of the retort.

From the foregoing construction it will be noticed that the water and oil are caused to travel back and forth before they are allowed to leave the retort. As these retorts are usually made of cast-iron, it has heretofore been found almost impossible to secure such a smooth surface as would not retard the passage of the
50

oil and cause a deposit of carbon; and to overcome this objection I make the bottom of the channels preferably slightly curved or rounded, and coat the inner faces of these channels with asbestos retort-lining which
55 fills up all the roughness in the bottoms of the channels and makes a smooth surface.

The curved dividing-walls H and I and the webs J, K, and L all extend upward to the same height as the outer wall of the retort proper, and to the upper edges of these walls I apply a cap-plate, N, which will be secured to the retort by means of bolts O, which pass through the laterally-projecting flange C of the retort and through ears P, formed upon
60 the cap-plate. However, before placing the cap-plate in position I place on the underside of said plate a disk or sheet, Q, of asbestos, and as the bolts are tightened up the upper edges of the walls are firmly embedded into
65 this asbestos disk Q.

R indicates the lower retort or burner, which is provided with a threaded neck, S, to screw onto the threaded nipple B, the said burner being further provided with jets or
75 openings T upon its upper face, as clearly shown in Figs. 1, 3, and 4. The lower end of the burner R is closed, and is adapted to fit into a plate, U, which is formed with a socket to receive and form a support for the burner
80 and retort.

The jets T in the burner are so arranged as to direct the flame directly against the under face of the main retort A, and, as the oil and water which travel through the circuitous
85 channels F and G are highly heated, they are converted into a vapor or gas by the time they reach the central discharge-outlet, M.

I am aware that it is not new to bring the oil and steam into a chamber through separate
90 pipes and to discharge through a common outlet; and I am also aware that a retort has been provided with a single volute channel; and to these plans I make no broad claim.

Having thus described my invention, what I
95 claim is—

1. The circular retort A, having the cap-plate N and the upright curved flange H, with its ends separated, flange K, extending from the wall of the retort inward between the ends
100

of the flange H, a central discharge-outlet, a web, J, joining the wall of the retort with the flange H, and inlets D and E on opposite sides of the web J.

- 5 2. In a retort having the circular wall, an inner ring-like flange, H, having its ends separated, a ring-like wall, I, within but separated from the flange H, and having its ends separated, webs K and L, extending, respectively, from the retort-wall and flange H inwardly between the open ends of the ring-like walls or flanges H and I, a central discharge-outlet within the space inclosed by the wall I, a web, J, connecting the wall of the retort
10 with the flange H to form passages F and G, inlets D E on opposite sides of said web, a cap-plate, and a burner.

3. The retort herein described, comprising body A, concentric walls H I, webs J and K, connecting, respectively, the walls H and I 20 with the main body A, a web, L, projecting from the inner face of wall H inward between the separated ends of the curved wall I, a central discharge-outlet, M, cap N, and a burner secured to the under face of the retort, all 25 substantially as shown.

In witness whereof I hereunto set my hand in the presence of two witnesses.

JOSEPH DARBY.

Witnesses:

H. M. SHEPHERD,

HORACE W. STAFFORD.