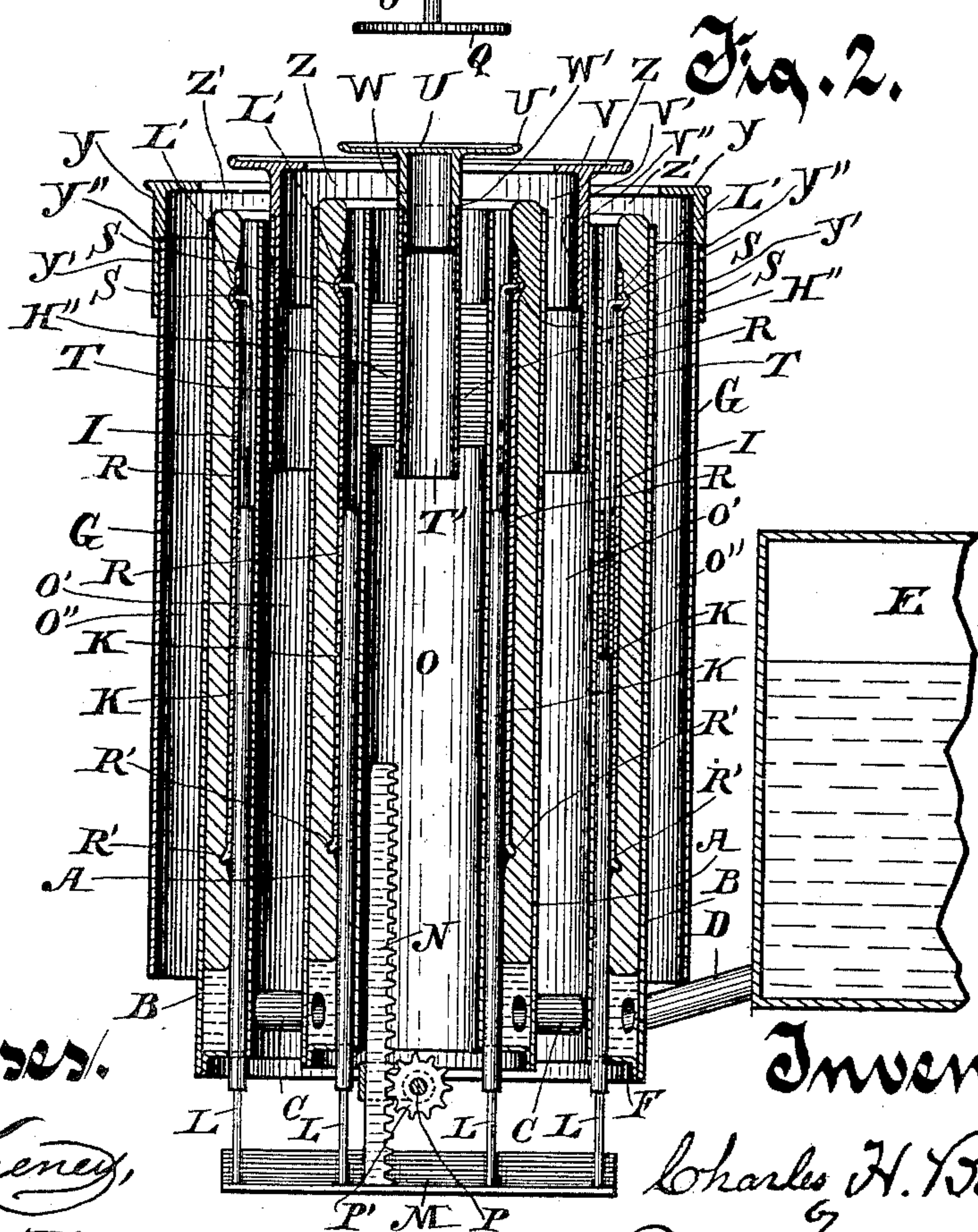
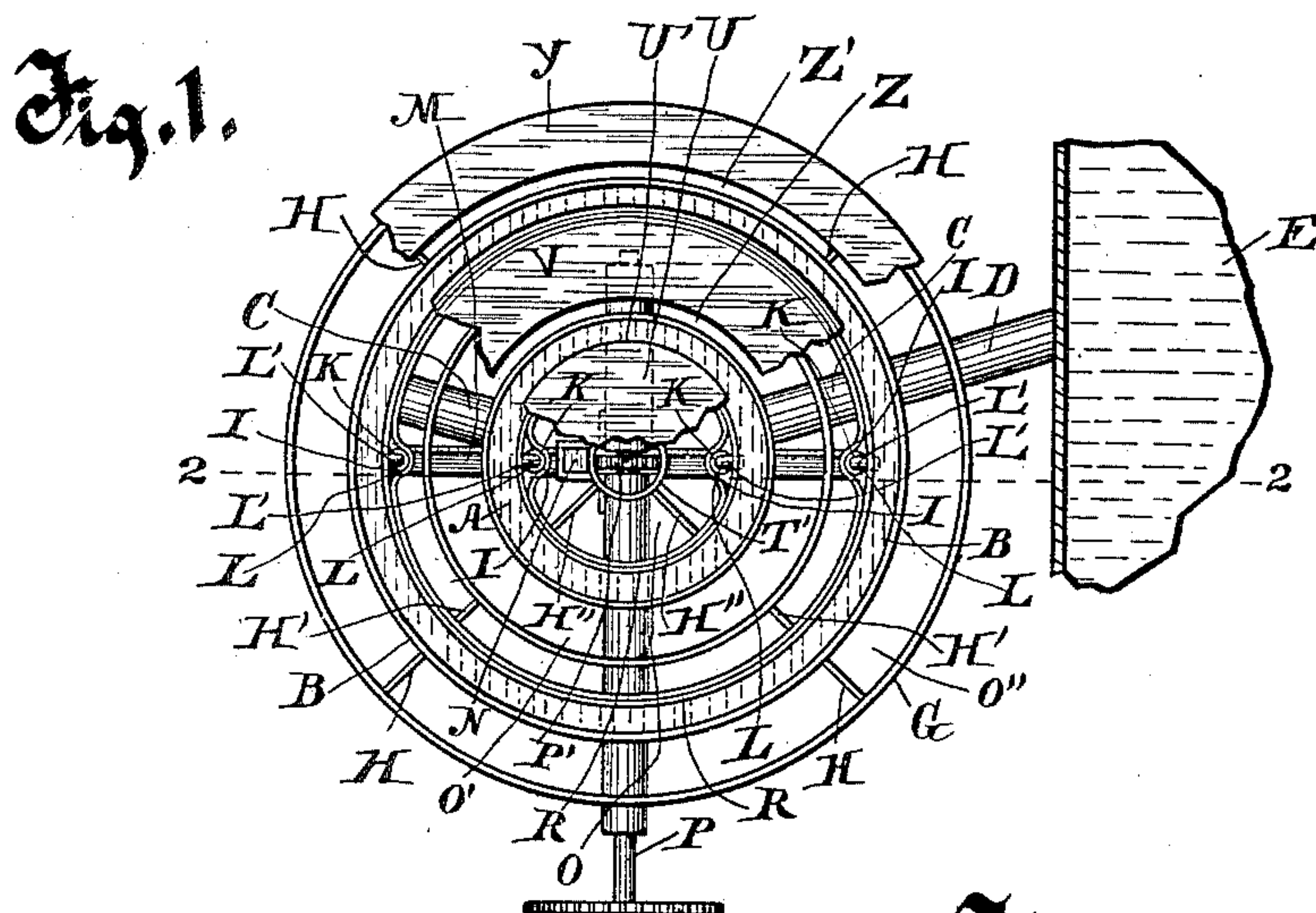


(No Model.)

C. H. BOECK.
OIL BURNER.

No. 442,304.

Patented Dec. 9, 1890.



Witnesses.

A. H. Keene,

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UNITED STATES PATENT OFFICE.

CHARLES H. BOECK, OF JACKSON, MICHIGAN, ASSIGNOR OF ONE-HALF TO HENRY H. SMITH, DWIGHT S. SMITH, AND HUGH L. SMITH, ALL OF SAME PLACE.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 442,304, dated December 9, 1890.

Application filed April 19, 1890. Serial No. 348,719. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. BOECK, of Jackson, in the county of Jackson and State of Michigan, have invented new and useful
5 Improvements in Oil-Burners; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon,
10 which form a part of this specification.

My improvements relate to that class of oil-burners having two or more circular wick-tubes and corresponding circular combustion-chambers, the invention relating chiefly to the
15 construction and arrangement of the burner-cones and deflectors and to the construction of the device for raising and lowering the wicks.

In my drawings I show two wick-tubes; but
20 a greater number could be used by adding others outside of the two shown, adding thereto related mechanism of similar form and arranged in like manner.

Figure 1 is a top or plan view of my improved
25 burner, the deflectors being broken away to show interior construction, and a portion only of the tank or reservoir being shown. Fig. 2 is a vertical transverse section of the same device on line 2 2 of Fig. 1.

30 The burner is provided with two circular vertically-extending wick-tubes A and B. The tube B is considerably greater in diameter than the tube A, and is placed about the tube A at a distance from it, the top of the tube A extending, preferably, slightly above the tube B. These wick-tubes A and B are connected
35 together near the bottom by the tubes C C leading from one wick-tube to the other, and a tube D leads from the outer wick-tube B to the oil-reservoir E, from which the supply of oil enters the wick-tubes. The oil-reservoir E is located at a little distance from the burner and in such relation thereto that the oil is fed by gravity from the reservoir to the
45 wick-tubes through the tube D. The wick-tubes A and B are closed at the bottom, preferably, by bending the lower part of the inner wall of the tube, which walls are constructed of sheet metal across the bottom of
50 the tube to the opposite wall, and is then

turned downwardly alongside thereof, forming a flange or rim F, which, being placed against the surface of the outer wall, is readily soldered thereto, whereby the wick-tubes are made liquid-tight. A cylindrical tube G,
55 of greater diameter than the outer wick-tube B, is placed about the wick-tube and encompasses it at a little distance therefrom from near the bottom of the tube to near the top thereof. This tube is secured rigidly to the
60 wick-tube by the sheet-metal braces H H, located near the bottom of the tube.

The wick-tubes A and B are each constructed with two longitudinal grooves I I in their inner walls, extending throughout their
65 length, which grooves are arranged in the burner in a diametrical line. A small liquid-tight tube K is located in each one of these grooves and pierces the bottom of the wick-tube and extends from at or a little below the
70 bottom of the wick-tube to above the level of the top of the reservoir E. These tubes are secured liquid-tight in the bottom of the wick-tubes, so that no oil can escape through
75 the bottom of the wick-tube about the small tubes K K. Small wire shifting rods L L pass movably through these tubes K K, and at their lower or outer ends are secured rigidly to the cross-head M. A toothed rack N is af-
80 fixed at one end to the cross-head M and projects therefrom upwardly into the burner, preferably in the air-passage O within the wick-tube A. A revoluble rod P, supported in bearings therefor on the bottom of the
85 wick-tubes A and B, is provided with a pinion P', which meshes with the rack M. This rod is also provided with a milled head Q, whereby it is conveniently rotated. Similar wick-supporting slides R R are fitted mov-
90 ably in the wick-tubes A and B, respectively, close about their inner walls, which slides are not as long as the wick-tubes, but are preferably about two-thirds or three-fourths as long and extend normally from near the top of
95 the wick-tubes downwardly therein. These slides are each provided near its top with an annular groove S, into which the upper extremities of the rods L L, turned laterally to form bearing-studs L' L', enter loosely, but
100 with such extent of bearing as to carry the

slides up and down with them as they are raised and lowered. This construction permits the slides to be placed within the wick-tubes and over the studs L' L' without longitudinal adjustment with reference to the studs, as the groove S, extending entirely around the slide, will receive the studs therein at any part of its periphery. The lower ends of the slides R R are preferably turned outwardly a little, as seen at R' R', whereby a slight flange or bearing is provided, which will prevent the wick from slipping off the lower end of the slide, about which the wick is placed and to which it is secured, so as to be carried thereon vertically by the movement of the slide.

As the wick-tubes and the inclosing-cylinder G are of different diameters, there are two passages O' and O'' besides the passage O, which extend longitudinally through the burner, the passage O being a central one within the tube A, the passage O' being between the two wick-tubes A and B, and the passage O'' being about the wick-tube B within the cylinder G. These passages are intended and adapted for the passage of air therethrough upwardly to aid the combustion in the chambers at the top of the tubes. The passage O' is divided near its top into two parts by the short circular tube T, somewhat less in diameter than the outer wick-tube B, which is located in the chamber O' at a little distance therefrom and at a distance from the tube A, extending downwardly for a distance from about opposite the top of the tube B. This tube T is secured rigidly to the wick-tube B by the braces H' H'. A small tube T', of considerable less diameter than the interior of the wick-tube A, is located in the top of the burner in the passage O, and is secured rigidly to the wick-tube A by braces H'' H''. The top of this tube is about even with the top of the tube A, and extends downwardly a distance into the passage O.

For constructing combustion-chambers, and at the same time forming satisfactory burner-cones or flame-apertures, and providing deflectors for properly controlling and guiding the flame, I use a disk U and rings V and Y. The disk U is mounted on a short centrally-affixed and downwardly-projecting pin W, (which in the drawings is shown in tubular form,) which is provided with a shoulder W'. The pin W is adapted to enter the tube T', the shoulder W' resting on the top of the tube, whereby the disk U is supported at a proper distance above the top of the wick-tube A. The disk U has about the same diameter as the inner wall of the wick-tube A, and the outer edge of the disk is slightly turned or curved upwardly, as seen at U'. The laterally-extending ring V is provided

with a downwardly-extending rib or flange V', which flange is provided with a shoulder V'', the flange being of a proper size to fit within the tube T, while the shoulder V'' rests on the top of the tube, and thereby supports the ring V at a proper distance above the wick-tube B, the altitude of the ring being a little less than that of the disk U above the tops of the tubes. The ring projects inwardly a little distance from the flange V', and the aperture in the ring V is somewhat greater in diameter than the exterior diameter of the wick-tube A. The ring V also projects outwardly from the flange V', so that its outer edge has a diameter about equal to the diameter of the inner wall of the wick-tube B, and this outer edge of the ring V is also turned or curved on its under surface upwardly slightly. The outer ring Y has a downwardly-extending circular flange Y', having a shoulder Y'', and this flange Y'' is fitted about the cylinder G, the shoulder Y'' being adapted to rest on the top of the shoulder, whereby the ring Y is supported above the top of the burner, but a little lower than the ring V. The aperture of the ring Y is a little greater in diameter than the exterior diameter of the wick-tube B. This construction and arrangement of the disk U and rings V and Y form two combustion-chambers Z and Z' below the disk and rings and above the tops of the wick-tubes, and also form satisfactory burner-cones with proper apertures for the passage of the flames therethrough, while they also serve as deflectors to properly control and guide the flame. The disk U and rings V and Y are removable from the burner. The slides also may be readily removed for fitting new wicks thereon.

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

In an oil-burner having circular wick-tubes, one within the other, the combination, with the wick-tubes provided with longitudinal grooves arranged in a diametrical line and shifting-rod tubes inserted liquid-tight in the grooves in the wick-tubes, of wick-supporting slides, each provided with an annular groove and located movably in the wick-tubes, and shifting rods inserted movably in the rod-tubes, the rods terminating at their upper ends in laterally-projecting studs which enter the grooves in the slides, the rods being all secured at their other extremities rigidly to a cross-head, and means for shifting the rods endwise, substantially as described.

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

CHARLES H. BOECK.

Witnesses:

JAS. W. DOW,
W. B. OSBORN.