

No. 607,422.

Patented July 19, 1898.

L. J. CAMPBELL.

OIL BURNER.

(Application filed Aug. 16, 1897.)

(No Model.)

2 Sheets—Sheet 1.

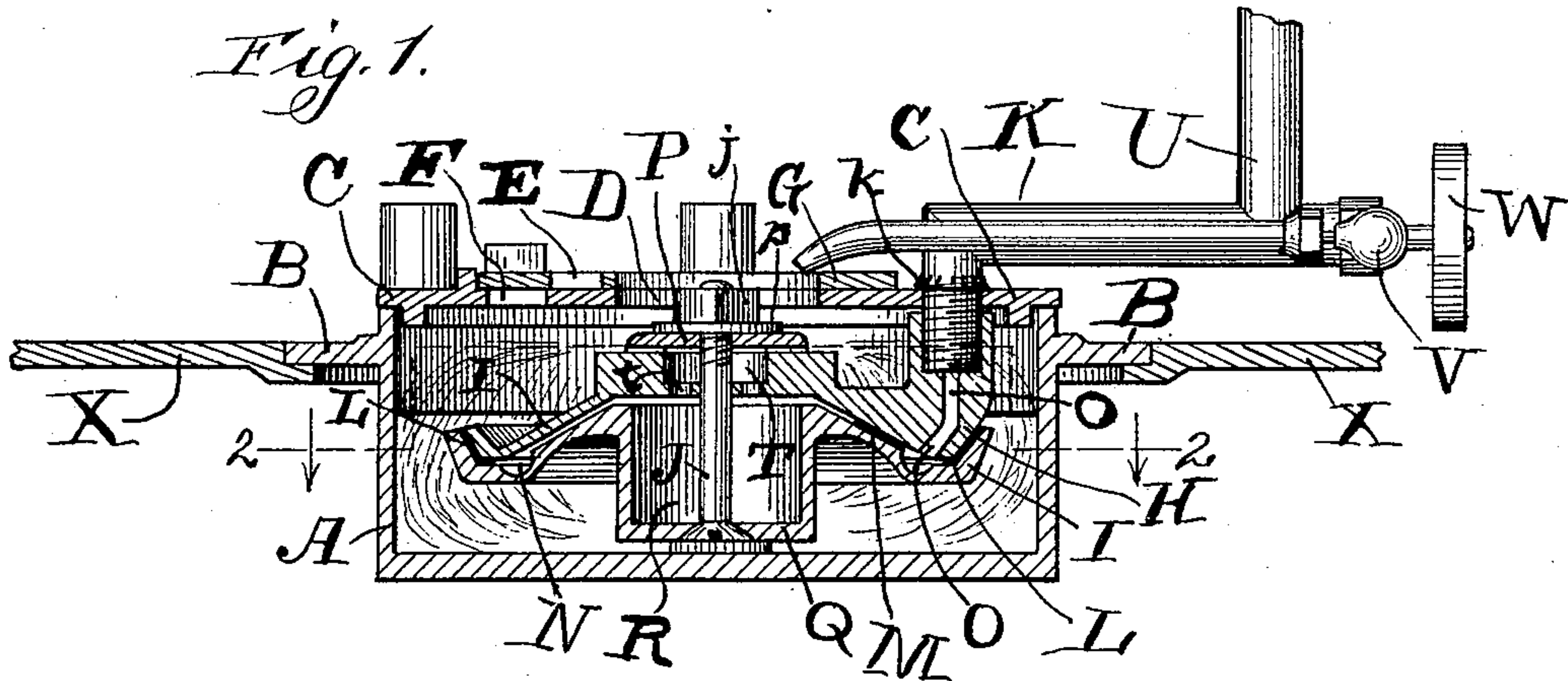


Fig. 2.

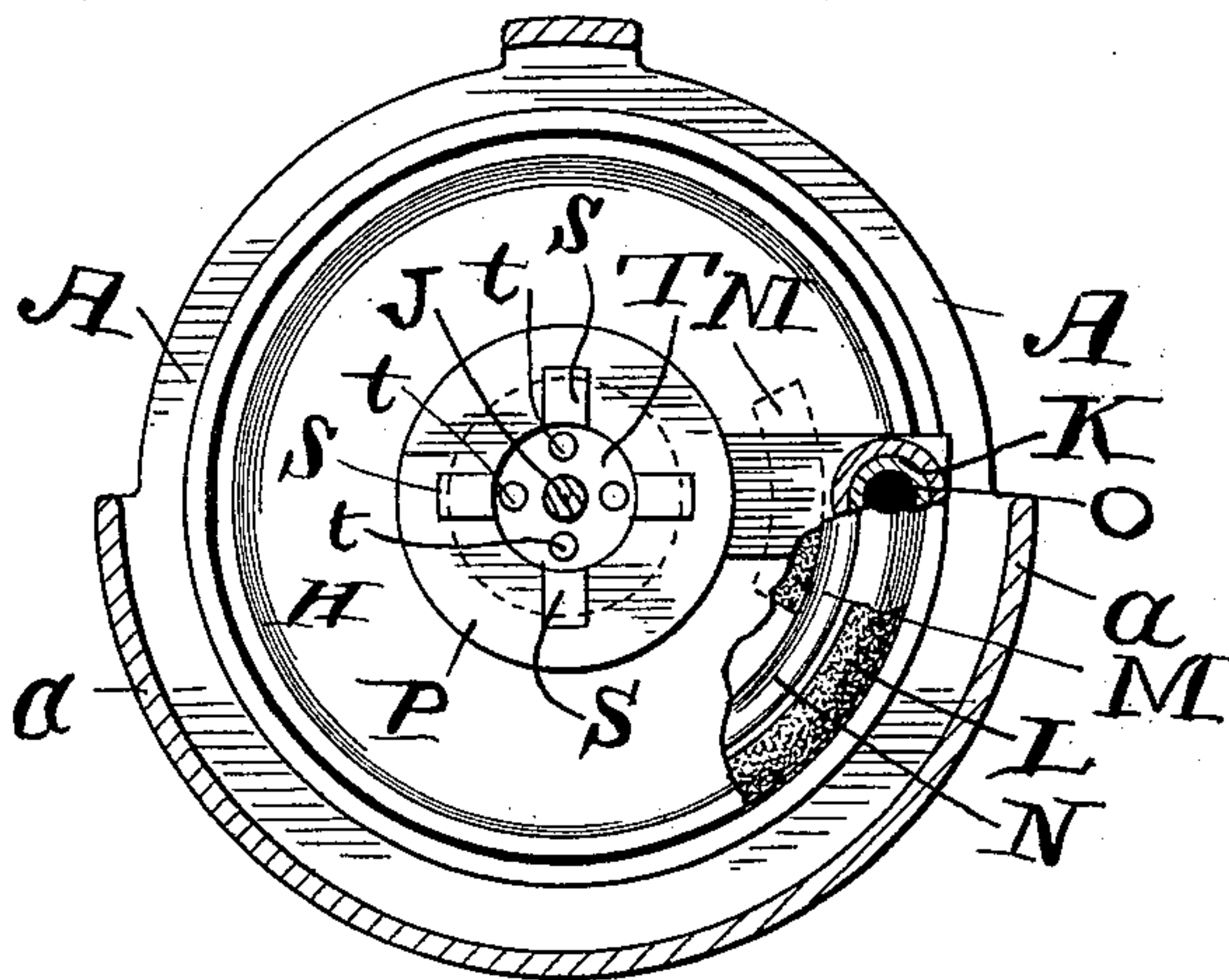
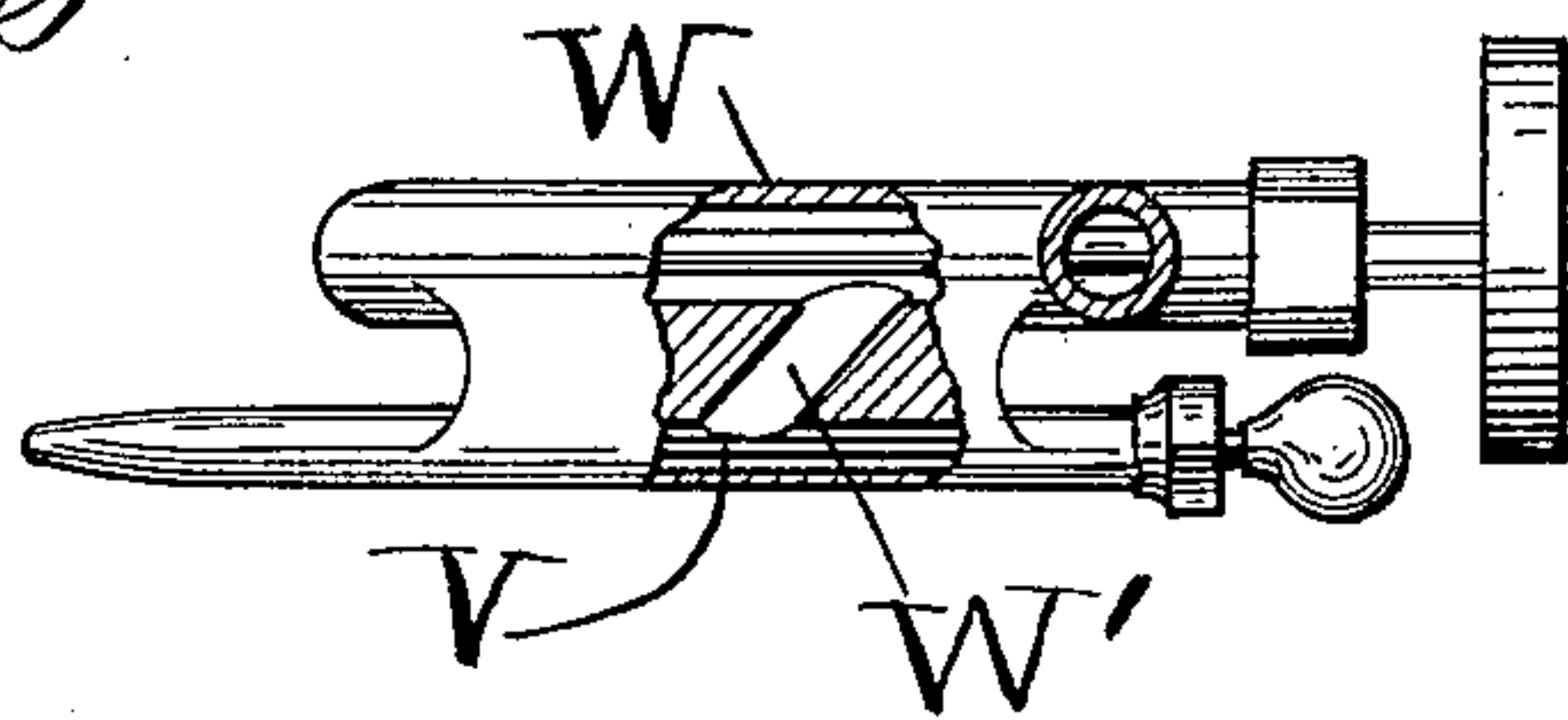


Fig. 3.



Witnesses:

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Inventor:

Leon J. Campbell,

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Fig. 4.

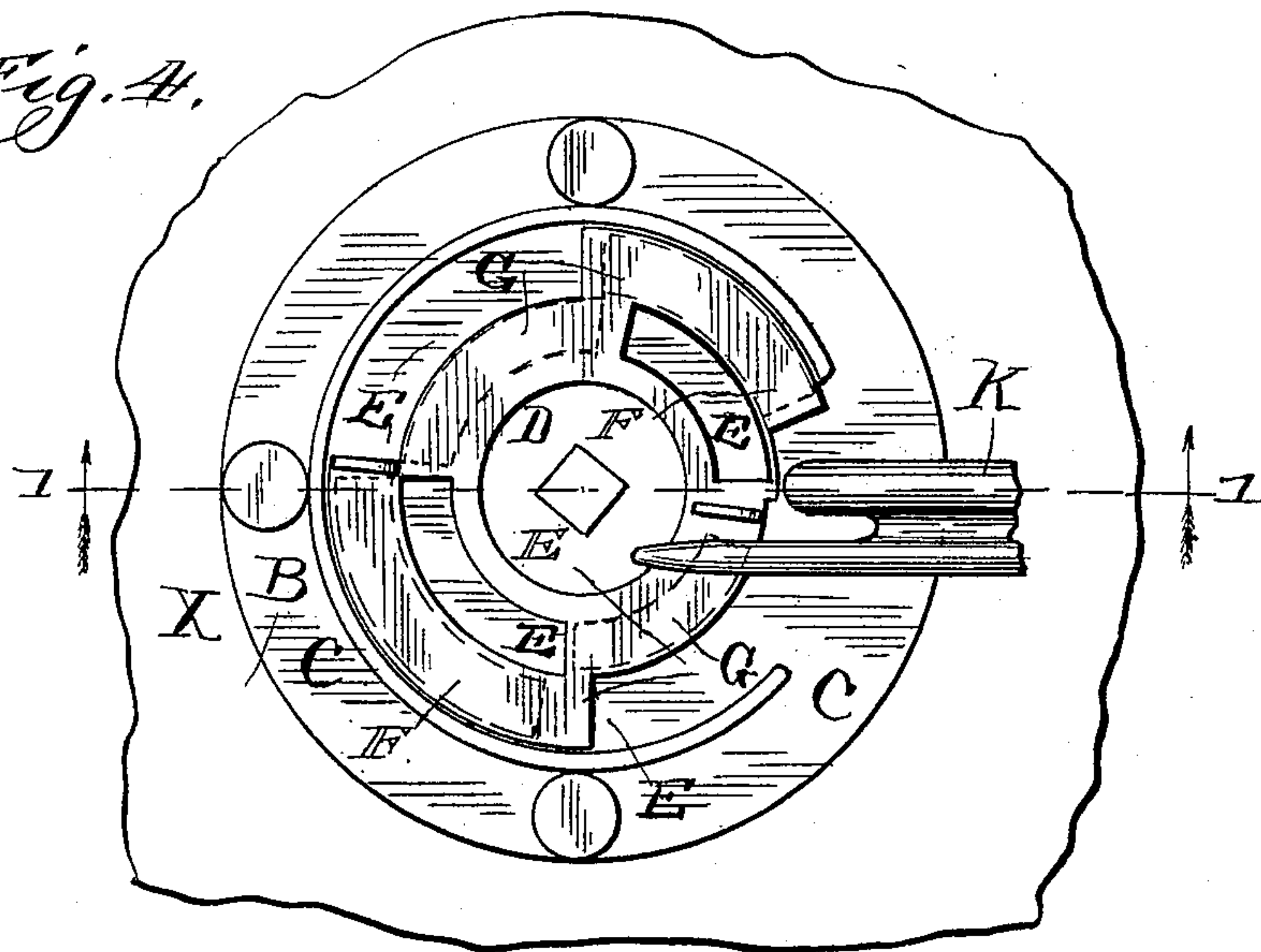
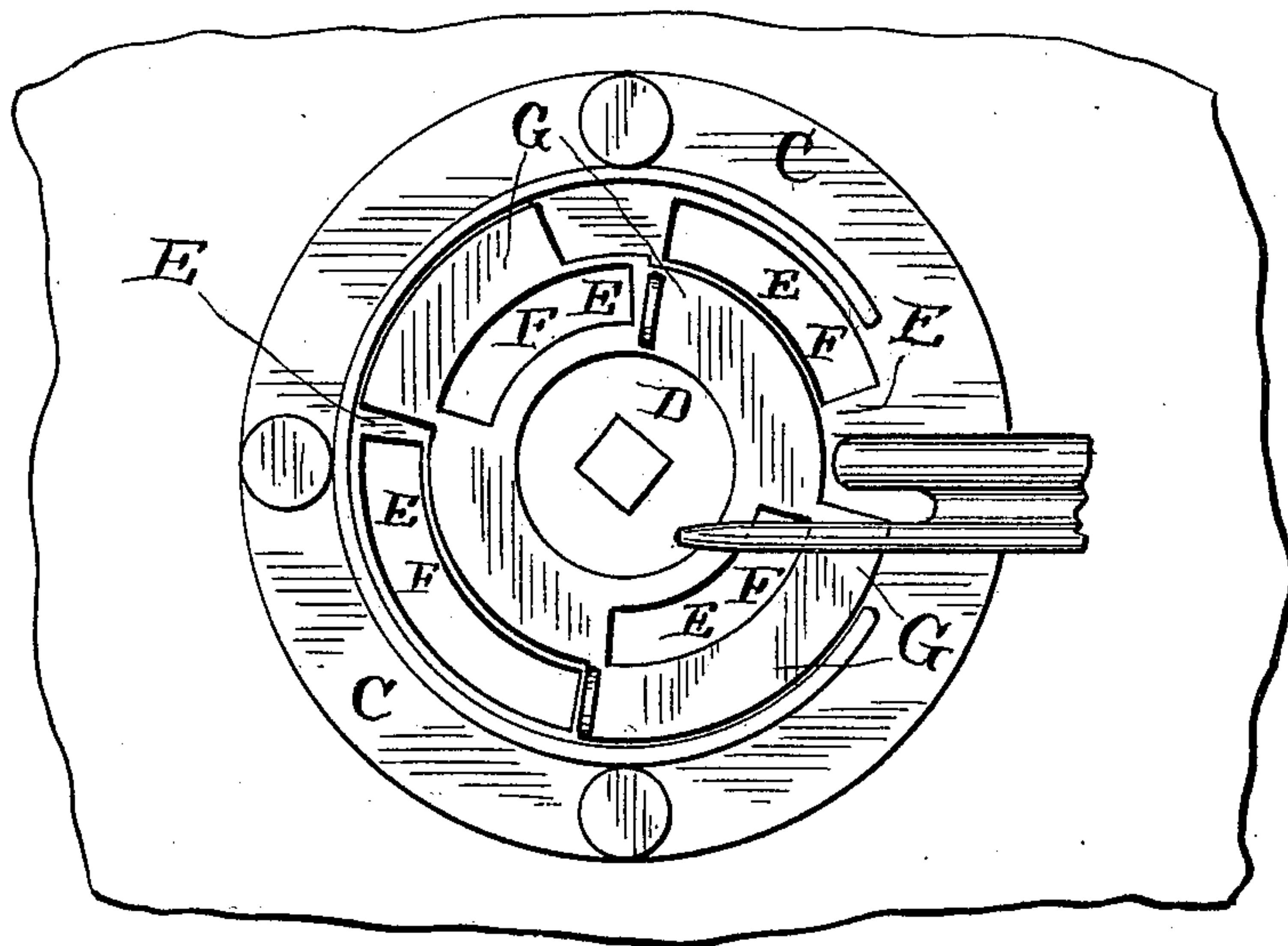


Fig. 5.



Witnesses:

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Inventor:

Leon J. Campbell,
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UNITED STATES PATENT OFFICE.

LEON J. CAMPBELL, OF CHICAGO, ILLINOIS.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 607,422, dated July 19, 1898.

Application filed August 16, 1897. Serial No. 648,379. (No model.)

To all whom it may concern:

Be it known that I, LEON J. CAMPBELL, a resident of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Oil-Burners, of which the following, when taken in connection with the drawings accompanying and forming a part thereof, is a full and complete description, sufficient to enable those skilled in the art to which it pertains to understand, make, and use the same.

My invention relates to that class of oil-burners wherein no wick is used and in which the oil burned, usually kerosene, is by heat put into such condition as to readily burn, the purpose of the combustion of the oil being to produce heat and not illumination; and the object of this invention is to obtain a burner of the kind named whereby the oil constituting the fuel of the burner is converted into a vapor or vaporous product before being ignited.

A further object of the invention is to obtain an oil-burner of the kind named which can be placed in an ordinary stove fire-pot and be economically used in the burning of oil without requiring any change in the stove or in its setting up.

A still further object of the invention is to obtain an oil-burner of the kind named which shall be simple in construction, of few parts, not liable to get out of order, and requiring but little care and attention in the successful working thereof.

In the drawings referred to as illustrating this invention, Figure 1 is a vertical central sectional view of an oil-burner on line 1 1 of Fig. 4 viewed in the direction indicated by the arrows; Fig. 2, a horizontal sectional view on line 2 2 of Fig. 1 viewed in the direction indicated by the arrows; Fig. 3, an enlarged view of the valve by which oil is supplied to start the combustion and to maintain the same in the burner. Fig. 4 is a top plan view of the burner with the damper thereof closed and showing a small part of the fuel-supply pipe, and Fig. 5 is a top plan view of such burner with the damper thereof open.

A reference-letter applied to designate a given part is used to indicate such part

throughout the several figures of the drawings.

X is the top of a stove or range, having the ordinary stove-holes.

A is a bowl fitting into stove-hole Y in stove-top X.

B is a flange on bowl A, resting on the stove-top X.

The bowl A as I prefer to construct it has the side thereof removed on practically one-half ($\frac{1}{2}$) its circumferential wall *a*, so that the flame from the burner (which extends downward around the burner and out of the opening or openings in such circumferential wall) may be directed by turning the bowl in the stove-hole in any desired direction in the fire-pot—that is, so that the flame may be directed, say, against the water-back of the fire-pot from one end of the fire-pot to the other or toward the oven of the stove.

C is the cover of the bowl A.

D is a central hole in cover C, through which a supply of air is furnished to the burner.

G is an adjustable top or damper on cover C, and E E are holes through such top or damper. F F are holes, additional to the holes D, through cover C, such holes F F corresponding to the holes E E and being dampered thereby and by means of which the holes F F are adjustably arranged to supply, in combination with the central hole D, the proper amount of air to the burner to obtain the best combustion of the oil burned therein—that is, the supply of air for combustion is constant through the central hole D; but the quantity of air supplied through such central hole D is not sufficient to obtain perfect combustion of the vapor generated by the apparatus, and some additional air is therefore supplied through holes F F, such additional quantity being determined by the adjustment of damper G and holes E E therein relative to holes F F in cover C. After top G is adjusted to give, in combination with the central hole D, the proper quantity of air to the flame of the burner such adjustment need not be ordinarily changed.

H is the upper part or portion of the burner proper, and I the lower part or portion thereof. Parts H and I are secured together by the bolt J, as will be hereinafter fully de-

scribed, and to the cover C of bowl A by the elbow K, passing through such cover C and into the upper part or portion H thereof.

5 *k* is a shoulder on elbow K coming into close contact with the upper surface of the cover C.

10 L is an asbestos packing between parts H and I, preventing leaking of oil or vapor contained between such parts, and M is a small piece of asbestos or other suitable sheet material placed between the parts H and I to divert oil contained between the parts in the groove N, so that the same will not pass directly up between such parts after having
15 been discharged into such groove from passage-way O.

P is a plate on upper part or portion H of the burner, and *p* is a washer on such plate P. Bolt J extends through the bottom Q of
20 well R in the lower part or portion I of the burner, through such well R, through the upper part or portion H of the burner, through plate P and washer *p*, and has on the upper end thereof the nut *j*. Nut *j* is turned to
25 close contact with washer *p*, holding the several parts H I, plate P, and washer *p* firmly together. Washer *p* is not an essential element, it will be observed, but is preferably used.

30 S S S are thin metal plates interposed between plate P and upper part or portion H of the burner to hold such plate in such relative position with the upper part H that vapor contained in well T thereof may escape there-
35 from in a thin sheet.

t t t t are holes through upper part or portion H connecting well R with well T, so that vapor or liquid in the well R may and will pass therefrom into well T, and from thence
40 between the plate P and the upper surface of the upper part or portion H from the burner.

U is the oil-supply pipe of the burner, and V W are respectively valves by which the supply of oil to the burner is controlled.
45 Valve V delivers oil onto the upper surface of the upper part H, and valve W delivers oil to passage-way O.

W' is a passage-way connecting valve V with valve W, so that oil delivered from pas-
50 sage-way O to valve W will be delivered before passing through the valve to valve V, when such valve is opened.

The operation of the device is: Valve V is opened and oil delivered to the upper surface
55 of the burner, where it is ignited. Parts H and I are by the burning oil heated, and the valve W is opened. Oil is thereby discharged into the groove N and, extending around in such groove, ascends between the parts H and
60 I, (such parts being close to contact, but not in contact.) Plates or parts H and I being heated by the flame of the oil on the upper surface of the burner, such ascending oil is converted into vapor or reduced to a vaporous form and is delivered into the well R.
65 Any liquid delivered into such well R will

fall to the bottom thereof, and any vapor delivered thereinto will pass through the passage-ways *t t t t* into well T, and from thence pass-
ing out between the plate P and the upper 70 surface of part H will be ignited by the flame of the oil burning on the upper surface of such part. The valve V is then closed, and the vapor, escaping from the well T, as described, is burned. The resulting flame is 75 diverted by the position of the air-supply and the construction of the bowl, as hereinbefore described, around and underneath the parts H and I, maintaining sufficient heat therein to continuously convert the oil running into 80 groove N from passage-way O into vapor, as described. The flame is also directed by the turning of the bowl into any direction in the fire-pot desired.

Having thus described my invention, what 85 I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in an oil-burner, of an upper and a lower part, the lower part having a well therein and an outwardly and down- 90 wardly extending table from the upper edge of the well, a circumferential groove around the lower portion of the table and an extension of the table beyond the groove, and the upper part having a passage-way for oil there- 95 through discharging into the circumferential groove in the lower part, a table corresponding with the table on the lower part, such upper part having holes therethrough over the well in the lower part with a well above such 100 holes, a plate above the well in the upper part, such plate in proximity to but not in contact with the upper part, an asbestos packing between the parts outside the circumferential groove, and means for securing the two parts 105 firmly together; substantially as described.

2. The combination in an oil-burner, of an upper and a lower part, the lower part having a well therein and an outwardly and down- 110 wardly extending table from the upper edge of the well, with a circumferential groove around the lower portion of the table, and the upper part having a passage-way for oil therethrough discharging into the circumfer- 115 ential groove in the lower part and a table corresponding with the table on the lower part, and such upper part having holes there- through in the part thereof extending over the well in the lower part, with a well above 120 such holes, a plate above the well in the upper part, such plate in proximity to but not in contact with the upper part, asbestos between the tables a portion of the way around the tables and an asbestos packing between 125 the parts outside the circumferential groove, and a bolt extending between the two parts and securing them together; substantially as described.

3. In an oil-burner, the combination of a bowl having a horizontal flange resting on the 130 top of a stove when the bowl is in one of the holes of such stove, with the circumferential

wall of the bowl partially removed, a cover to the bowl having a central air-draft hole and damper-controlled air-holes outside the central one, and a vapor-generating part composed of two parts in the bowl, the lower part of the generator having a central well therein and an outwardly and downwardly extending table from the upper edge of the well, with a circumferential groove around the lower portion of the table, and the upper part having a narrow passage-way for oil therethrough discharging into the circumferential groove in the lower part and a table corresponding with the table on the lower part, and such upper part having holes therethrough in the part thereof extending over the well in the lower part, with a well above such holes, a plate above the well in the upper part, such plate in proximity to but not in contact with the upper part and asbestos packing between the parts outside the circumferential groove and

means for securing the two parts together; substantially as described.

4. The combination, in an oil-burner, of an inclined circular table, having a circular groove around the lower edge thereof and a well at the upper edge, an oppositely-faced table adjacent to the first-named table, such oppositely-faced table having a passage-way for oil therethrough discharging into the circular groove, a well above the first-named well, passage-ways from the first-named well into the second-named well, and a plate covering the last-named well and placed a short distance from the top thereof to obtain a passage-way for vapor from the last-named well; substantially as described.

LEON J. CAMPBELL.

In presence of—

FLORA L. BROWN,
M. B. CAMPBELL.