No. 860,334. PATENTED JULY 16, 1907.

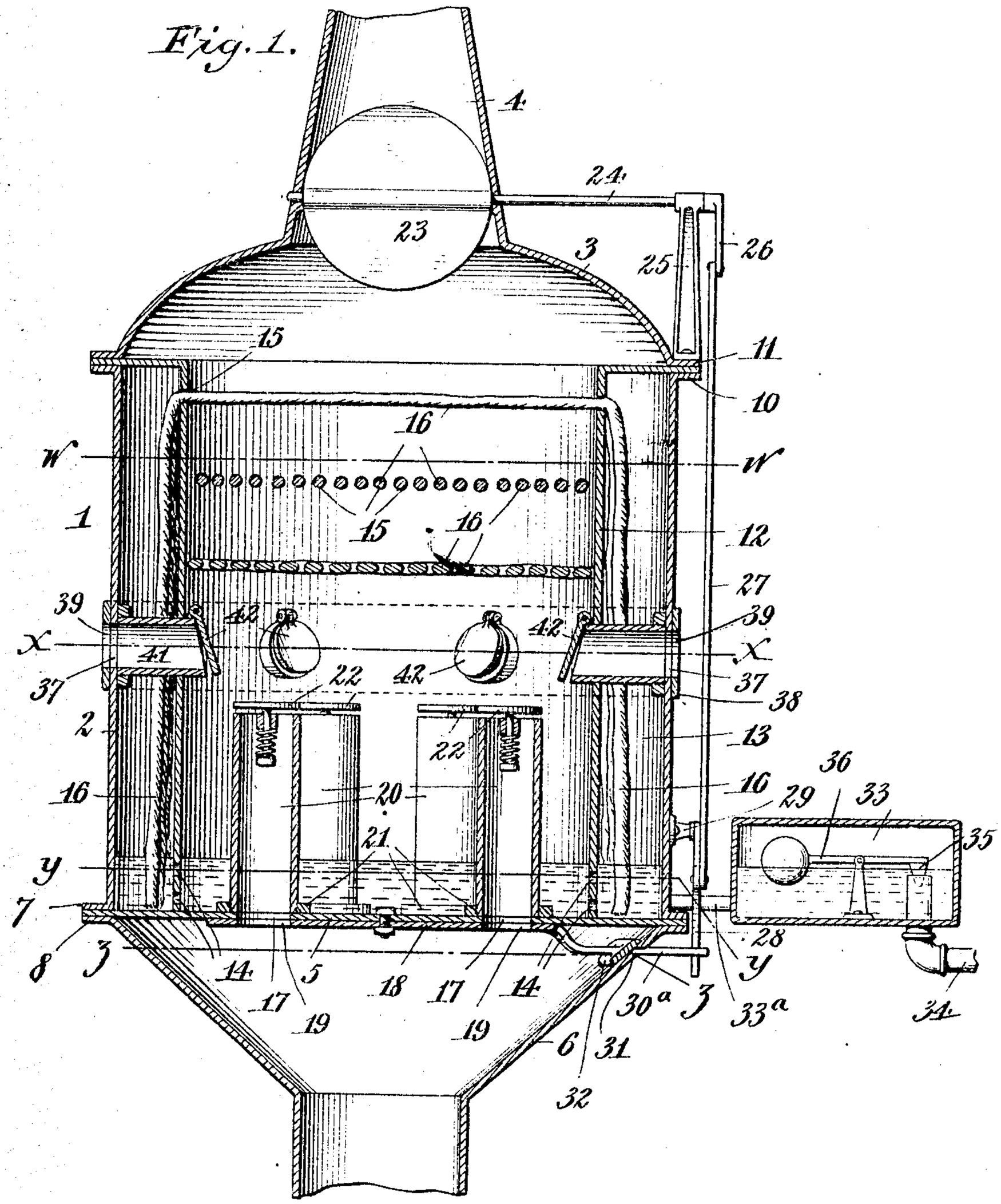
C. F. SCHELL.

CARBURETER.

APPLICATION FILED NOV. 3, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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Attorney.

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3 SHEETS—SHEET 2.

Fig. 2.

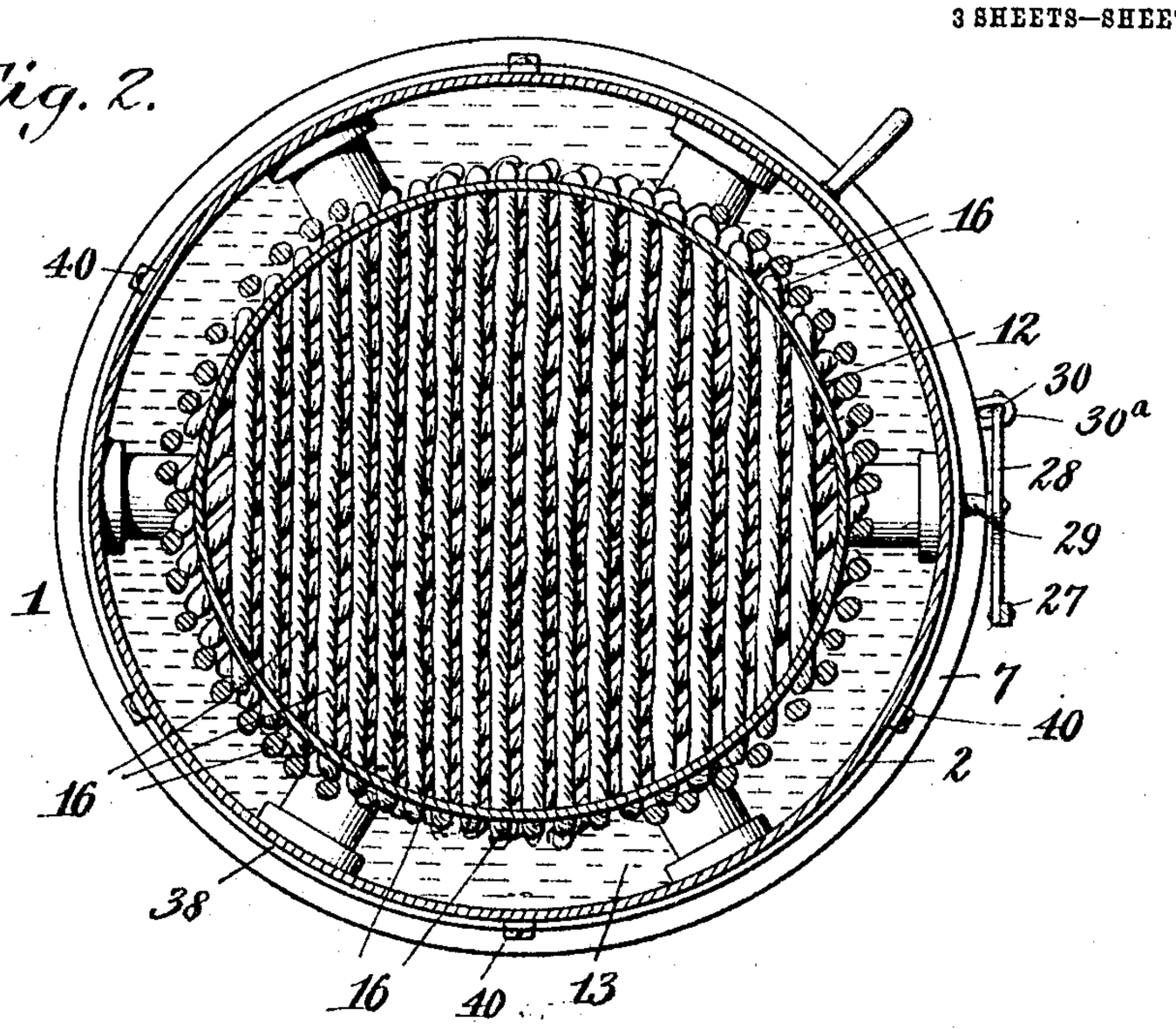
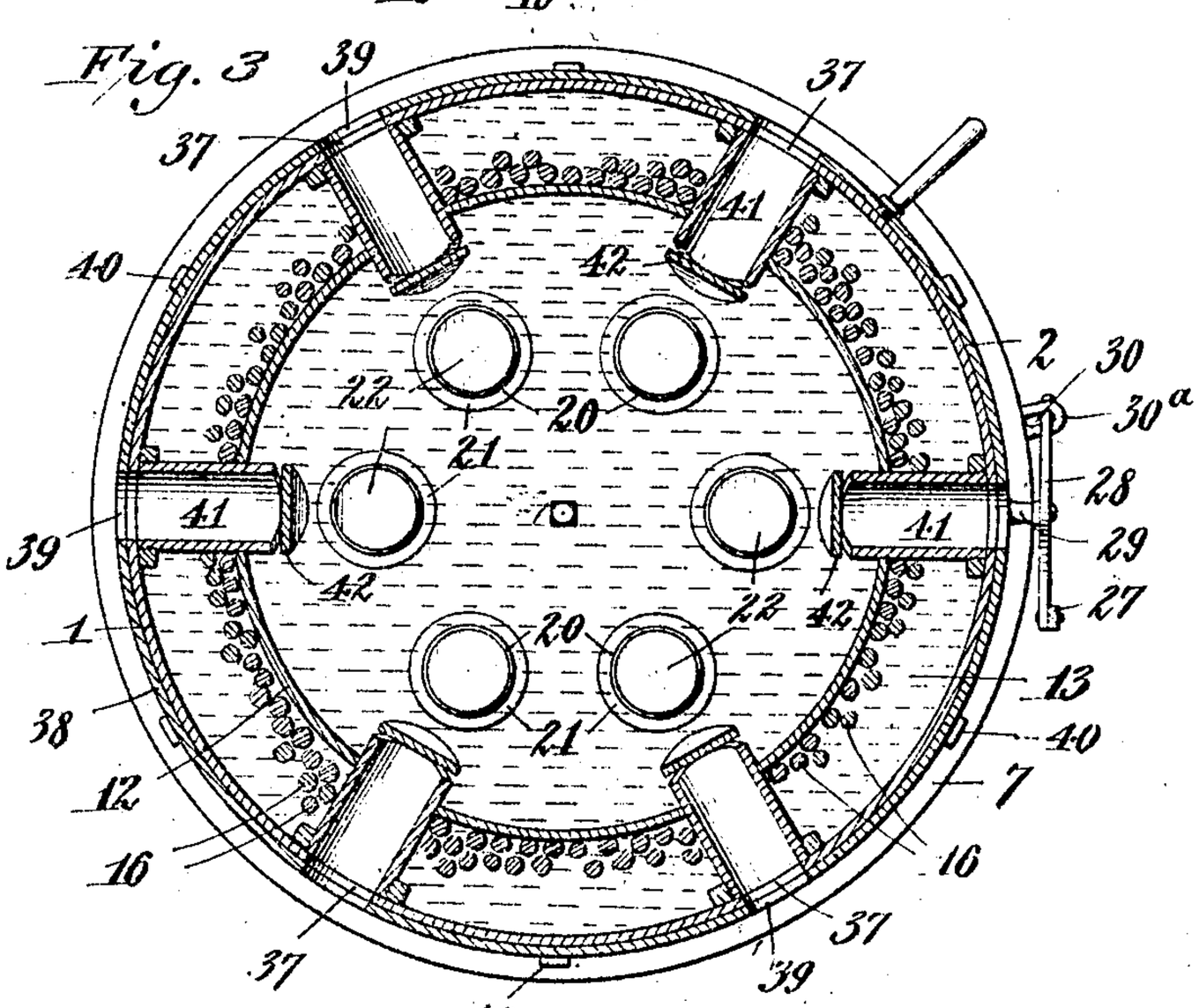


Fig. 3



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3 SHEETS—SHEET 3.

Fig. 4.

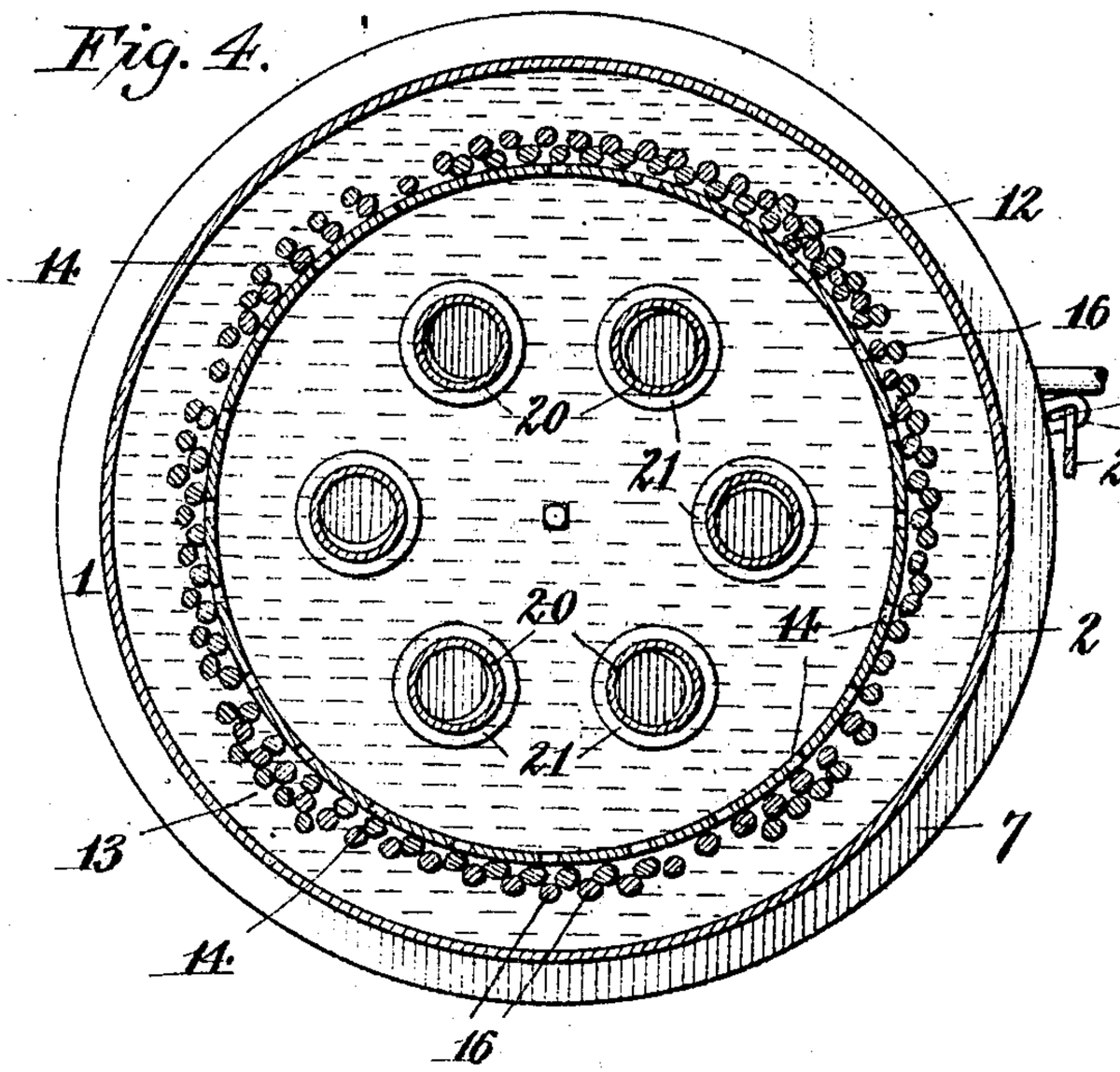


Fig. 6.

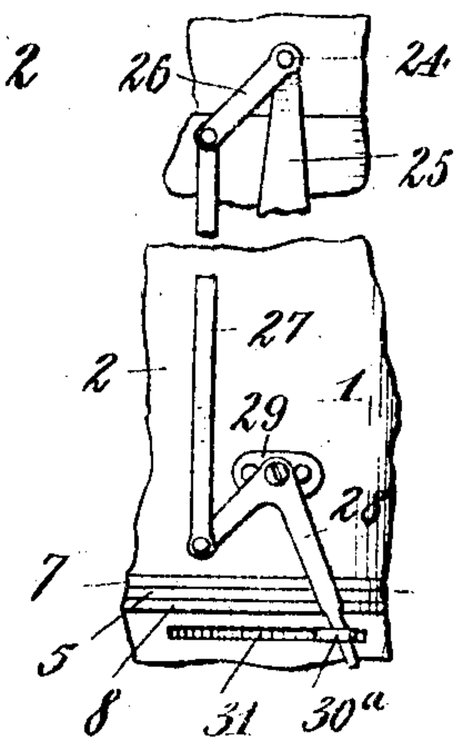
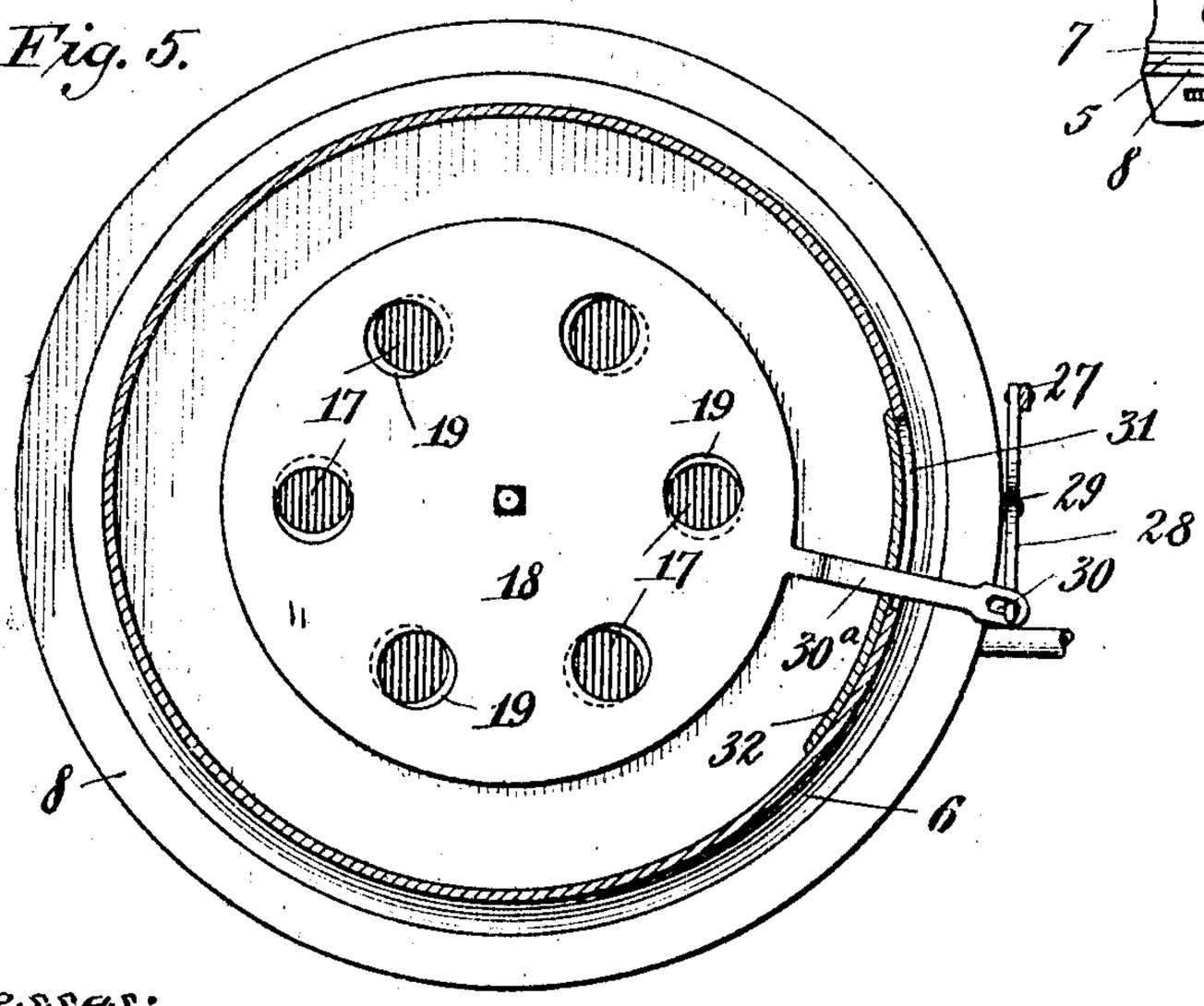


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES F. SCHELL, OF BUFFALO, NEW YORK, ASSIGNOR TO BUFFALO GAS GENERATOR AND MANUFACTURING COMPANY, A CORPORATION OF NEW YORK.

CARBURETER.

No. 860,334. Specification of Letters Patent. Patented July 16, 1907.

Application filed November 3, 1905. Serial No. 285,765.

To all whom it may concern:

Be it known that I, CHARLES F. SCHELL, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

This invention relates to improvements in carbureters, and it has for its object, the production of a simple, economical, and highly efficient carbureter, which is inexpensive, easily controlled, and in which the induction of warm and cold air can be easily and quickly regulated.

Other objects are, to provide the gas-outlet with a suitable valve and connect the same with a valve or regulator controlling the admission of warm air to the carbureting chamber so that both valves move in unison; to provide the inlet tubes with outwardly closing valves; to provide air-inlets for the admission of atmospheric-air; to provide improved means for regulating the admission of atmospheric-air; and to otherwise improve on carbureters now in use.

With the above mentioned and other objects in view, my invention consists in the construction, arrangement and combination of parts to be hereinafter described and particularly pointed out in the appended claims.

In the drawings,—Figure 1 is a central vertical section of my improved carbureter. Fig. 2 is a horizontal section taken on line *w—w*, Fig. 1. Fig. 3 is a horizontal section taken on line *x—x*, Fig. 1. Fig. 4 is a horizontal section taken on line *y—y*, Fig. 1. Fig. 5 is a horizontal section taken on line *z—z*, Fig. 1, looking up. Fig. 6 is a broken side elevation of the actuating mechanism interposed between the warm-air inlet-valve and the gas outlet-valve.

Referring to the drawings in detail, corresponding numerals of reference refer to corresponding parts in the several figures.

The reference numeral 1 designates the outer casing comprising the cylindrical central or body portion 2, the dome-like top 3 having a gas-outlet 4, the bottom 5, and the flaring air inlet-pipe 6.

The lower end of the cylindrical body-portion 2 and the upper edge of said inlet-pipe are provided with flanges 7 and 8, respectively, between which the bottom 5 is held. The upper end of the central or body-portion and the outer edge of the dome are also provided with flanges 10 and 11, respectively, between which the upper flanged end of an inner casing 12 is held, said inner casing being open at the top and bottom and separated from the outer-casing by an annular space 13. The inner casing extends to the bottom 5 and the lower end thereof is perforated, as at 14. Within the carbureter, is placed a quantity of inflammable liquid, such as gasolene, or the like; said liquid, by reason of the perforations 14, being contained within the inner casing as well as within the annular space 13.

At or near the upper end of the inner casing is one or more series of apertures 15, through which are passed cords of absorbent material 16, so arranged that they lie across the casing with their ends suspended and the extremities immersed in the gasolene. Three series of such apertures are preferably provided, the absorbent cords passed through each series being preferably parallel, and at an angle to cords of the other series. In this manner, the air passing through the carbureter is thoroughly carbureted by taking up the gasolene absorbed by the cords by capilliary action.

It is intended that the inlet-pipe 6 shall be connected to a source of warm air-supply so that a richer yield of gas is obtained. In order to lead the warm-air through the inner casing, the bottom 5 is provided with an annular series of openings 17 adapted to be closed or the extent of opening thereof regulated by a disk-valve or regulator 18 rotatably affixed to the under side of the bottom 5 and having openings 19 corresponding in size and disposition to the openings 17, so that on rotating the disk-valve, the openings 19 may be brought into or out of registration with the openings 17, or the latter may be partly closed. In this manner the warm-air supply may be shut-off entirely or regulated, as conditions may require.

To avoid passing the warm-air through the gasolene, inlet-tubes 20 are secured to the inner side of the bottom 5, the interior diameter of the same corresponding to the openings 17. The manner of securing the tubes to the bottom is not essential so long as a water-tight connection is obtained. I preferably secure an internally threaded collar 21 to the bottom in a water-tight manner, and provide the lower ends of the inlet-tubes with exterior threads to enter the threaded collars. The inlet-pipes are of sufficient length to extend above the highest level of gasolene to be used under any condition, so that the warm-air, without passing through the gasolene, is brought in contact with the absorbent cords.

The gas-outlet may be connected to the ignition-chamber of an engine, and on the outward stroke of the piston, suction is created which serves to draw the air through the carbureter. I therefore provide the upper ends of the inlet-tubes with suitable check-valves 22, so adjusted and constructed that they open inward to admit the warm-air to the inner casing on the outward stroke of the piston, or when suction is created through the carbureter-chamber in any other manner.

A butterfly-valve 23 is confined within the gas-outlet and provided with a stem 24, journaled near its outer end in a bracket 25 secured to the carbureter-casing. Secured to the outer extremity of said stem is a lever 26

having connection by means of a rod 27, with one arm of a bell-crank lever 28 pivoted to a bracket 29 secured to the carbureter-casing near the lower end thereof; the other arm of said lever extending through a longitudinal slot 30 in an arm 30ª extending from the disk-valve 18 out through a slot 31 in the flaring wall of the air-inlet pipe 6. In order to prevent the escape of air through said slot, a curved plate 32 is affixed to the arm 30 and serves to close the slot, irrespective of what the position of the arm 30 may be within said slot.

It may, under certain conditions, be desirable to maintain the gasolene at a constant level, and I therefore provide a float-chamber 33 which I connect with the carbureter by a pipe 33ª. The gasolene supply is shut-off when the gasolene reaches the level desired, and the manner of accomplishing this is immaterial. I have shown a supply-pipe 34 entering the float-chamber through the bottom, and the inner end of said pipe closed by a suitable valve 35 on the float-lever 36.

When the air-entering inlet 6 becomes too warm, the desired richness of gas cannot be obtained, and I therefore provide for the introduction of atmospheric-air to commingle with the warm-air prior to coming in contact with the saturated absorbent cords. This is done by forming in the outer casing or body-portion, a series of air-openings 37 which may be partly or entirely closed by an annular valve 38 having corresponding openings 39, and being guided in clips 40 secured to the sides of the casing. Inlet-tubes 41 extend from the openings 37 through the wall of the inner casing, said tubes having their interior diameter of a size corresponding to said openings and their inner ends cut on an angle, the greatest length of the pipe being at the bottom. Pivotally affixed to said inlet-tubes are inwardly opening flap-valves 42 which prevent the escape of air through the inlet-tubes.

I desire to be understood that I do not wish to be confined to the exact construction herein shown and described, but hold myself at liberty to make changes in the construction and arrangement of the several parts without departing from the spirit of my invention or sacrificing any of the advantages thereof.

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

1. In a carbureter, the combination of a carbureter-chamber provided with carbureting-means and having an air-inlet in its bottom and a suitable gas-outlet, an inlet-pipe secured to the lower end of the carbureter-chamber and having a slot therein, a flat valve rotatably affixed to the bottom of the carbureter-chamber and having an opening to register with the inlet in said bottom, said valve having an arm extending through the slot in said inlet-pipe.

2. In a carbureter, the combination of a carbureter-chamber provided with carbureting-means and having an air-inlet in its bottom and a suitable gas-outlet, an inlet-pipe secured to the lower end of the carbureter-chamber and having a slot therein, a flat valve rotatably affixed to the bottom of the carbureter-chamber and having an opening to register with the inlet in said bottom, said valve having an arm extending through the slot in said inlet-pipe, a valve in the gas-outlet, and operative connection between said valves to cause them to act in unison.

3. In a carbureter, the combination of a carbureter-chamber provided with carbureting-means and having an annular series of inlet-openings in its bottom and a gas-outlet, an inlet-pipe secured to the lower end of the carbureter-chamber and having a slot therein, a disk-valve rotatably affixed to said bottom and having a series of openings adapted to be brought into registration with said inlets and an arm projecting out through the slot in said inlet-pipe, a plate carried by said arm and adapted to keep said slot closed, a valve in the gas-outlet, and operative connection between the last mentioned valve and the arm of the disk-valve to cause both valves to act in unison.

4. In a carbureter, the combination of a carbureter-chamber provided with carbureting-means and having a series of air-inlets in its bottom for the admission of warm-air and a series of air-inlets in its sides for the admission of atmospheric-air, a gas-outlet, and means for closing the inlets of either or both of said series

5. In a carbureter, the combination of a carbureter-chamber provided with carbureting-means and having a series of air-inlets in its bottom, a suitable gas-outlet, a rotatable disk secured to said bottom and having openings corresponding with said inlets, a series of air-inlets in its side walls, and an annular valve surrounding said carbureter-chamber and having openings corresponding with said last mentioned inlets.

6. In a carbureter, the combination of a carbureter-chamber provided with carbureting-means and having an annular series of inlet-tubes extending upward from the bottom thereof, self-closing valves at the inner ends of said tubes, a disk-valve rotatably affixed to said bottom and having a series of openings adapted to be brought into registration with said tubes and an arm projecting from the edge thereof, a gas-outlet, a valve in the gas-outlet, and operative connection between the last mentioned valve and the arm of the disk-valve to cause both valves to act in unison.

7. In a carbureter, the combination of a carbureter-chamber provided with carbureting-means and having an annular series of inlet-tubes extending upward from the bottom thereof, self-closing valves at the inner ends of said tubes, a disk-valve rotatably affixed to said bottom and having a series of openings adapted to be brought into registration with said tubes, and a gas-outlet for said chamber.

8. In a carbureter, the combination of a carbureter-chamber adapted to contain a quantity of an inflammable liquid and having air-inlets in its bottom and inlet-tubes extending from said inlets into the chamber, spring-controlled valves at the inner ends of said tubes, a gas-outlet having a suitable valve, and means for carbureting air when passed through said chamber.

9. In a carbureter, the combination of an outer casing closed at the top and bottom and having an air-inlet in its bottom and a gas-outlet in its top, an inner casing separated from the outer-casing by an intervening space adapted to contain a quantity of inflammable liquid, said inner casing having a plurality of series of apertures near its upper end arranged in different planes, and cords of absorbent material passed through said apertures to lie in the path of the air passing through said casing, said cords extending down along the sides of the inner casing with their ends immersed in said inflammable liquid, the cords of one series of apertures being at an angle to those of the other series.

10. A carbureter consisting of an outer casing having air-inlets in its side walls, an inner casing separated from said outer casing by an intervening space supplied with a quantity of inflammable liquid, tubes projecting from said air-inlets through the inner casing, and absorbent material within the inner casing extending out into the liquid in said intervening space.

11. A carbureter consisting of an outer casing having air-inlets in its side walls, an inner casing provided with carbureting-means and separated from the outer casing by an intervening space, tubes projecting from said air-inlets through the inner casing, and self-closing valves at the inner ends of said tubes.

In testimony whereof, I have affixed my signature in the presence of two subscribing witnesses.

CHARLES F. SCHELL.

Witnesses:
EMIL NEUHART,
MAY F. SEWERT.