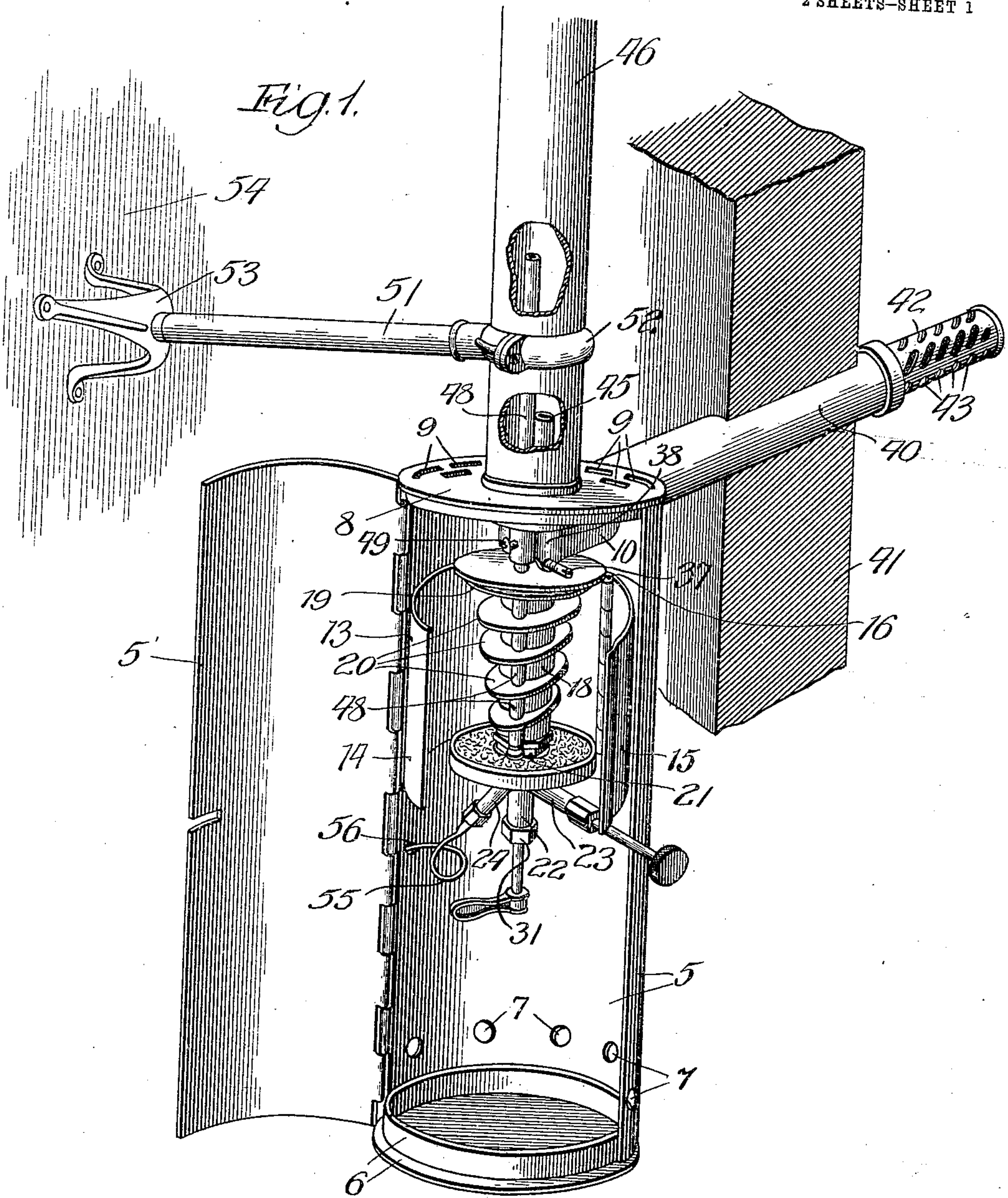


H. H. EASON.
GAS GENERATING APPARATUS.
APPLICATION FILED MAY 5, 1909.

955,585.

Patented Apr. 19, 1910.
2 SHEETS-SHEET 1



Witnesses:
Edw. J. Gaylord,
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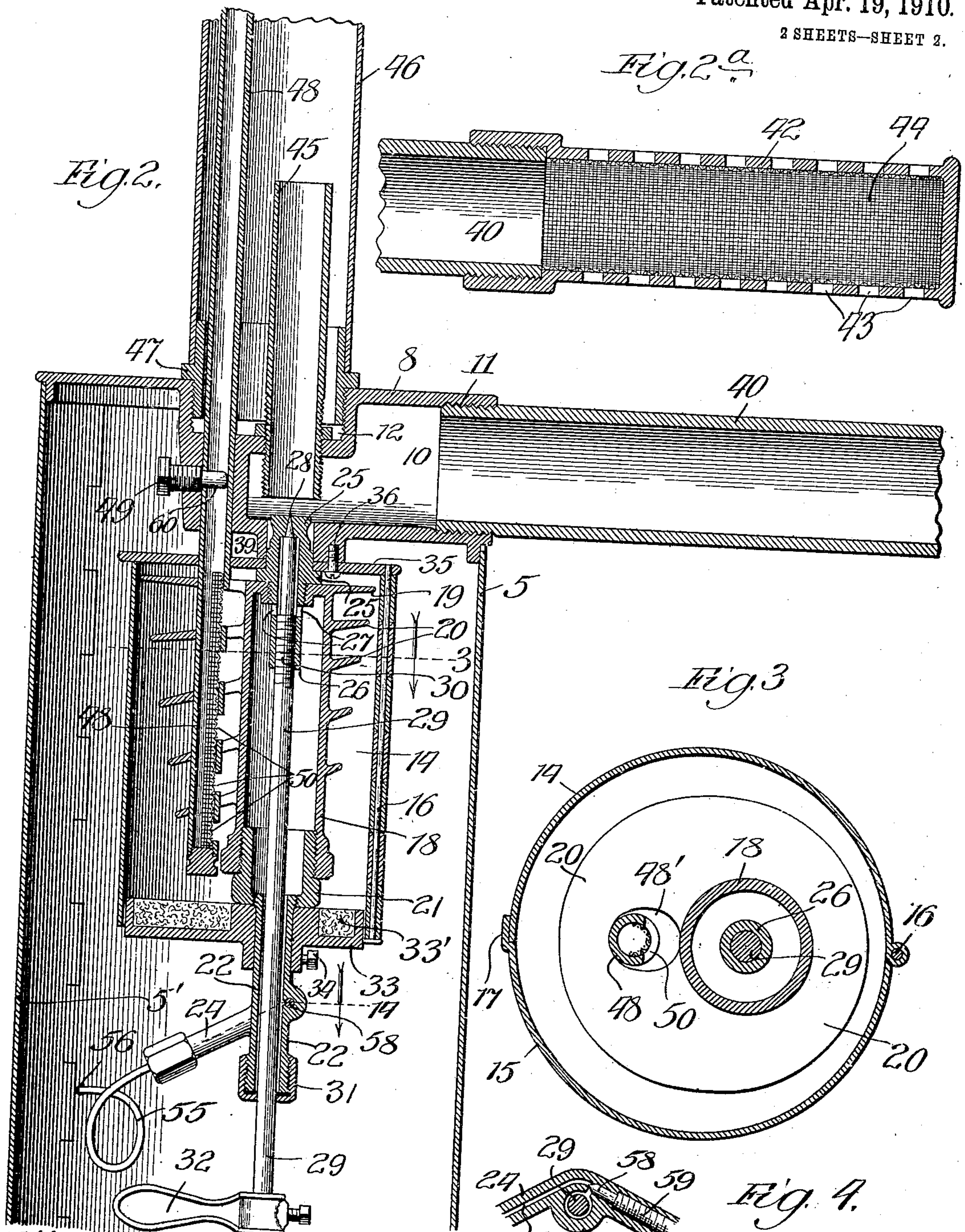
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UNITED STATES PATENT OFFICE.

HARTT H. EASON, OF CHICAGO, ILLINOIS, ASSIGNOR TO ACORN BRASS MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

GAS-GENERATING APPARATUS.

955,585.

Specification of Letters Patent.

Patented Apr. 19, 1910.

Application filed May 5, 1909. Serial No. 494,086.

To all whom it may concern:

Be it known that I, HARTT H. EASON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Gas-Generating Apparatus, of which the following is a specification.

My invention relates to an improvement in gas-generators of the class used for gasifying gasoline to produce illuminating and heating gas.

In the accompanying drawings, Figure 1 is a broken perspective view showing a generator of my improved construction in operative position; Fig. 2 is an enlarged broken view of the same in vertical sectional elevation; Fig. 2^a is a sectional view of the outer-end portion, or tubular cap, of the air-supply pipe; Fig. 3 is a section on line 3, Fig. 2, and Fig. 4 is a section on line 4, Fig. 2.

The casing 5 shown is formed of sheet-metal, and in cylindrical shape, with a hinged section 5¹ forming a door, which may be provided with any suitable means (not shown) for releasably fastening it in its normally-closed condition; the lower end of the casing is a metal-head 6, above which is provided a circumferential series of air-inlet openings 7, and the upper end of the casing is a similar head 8, containing vent-openings 9 and provided on its under side, as an integral part, with a mixing-chamber 10 which projects at one end horizontally through the casing-wall where it forms an internally-threaded nipple 11, while the upper part of the mixing chamber forms an annular internally-threaded seat 12 open at the center of the head 8, this seat and the nipple being provided for the attachment of parts hereinafter described.

The generator proper is housed in a casing 13, within the outer casing 5. This inner casing is preferably formed of two similar semi-cylindrical metal sections 14 and 15 hinged together along adjacent edges on which suitable eyes are provided, as shown, for hingedly connecting the sections through the medium of a pintle 16; and the free edge of the section 15 overlaps the corresponding edge of the other section, as represented at 17 Fig. 3, when the casing is closed. The two heads for the generator-casing are stationarily supported as hereinafter described.

The generator 18 is a tubular chamber-forming body, preferably of brass, having cast or formed integrally with it a disk-shaped horizontally-extending upper plate 19, for the baffling-purpose hereinafter explained, and at intervals below it along the chamber inclinedly-extending baffle-plates 20, of which four are shown of general pallet-shape surrounding the tubular chamber externally thereof.

A nipple 21 is screwed into the lower end of the tube, this nipple having a depending tubular extension 22 provided with a threaded engagement therewith, into which branches 23 and 24 lead near its lower end, and another nipple 25, screwed into the upper end of the generator-tube, has a depending tubular extension 26 internally threaded and provided, close to the nipple, with a circumferential series of holes 27 forming vapor-outlets from the generator through the nipple 25. In the nipple 25 works a needle-valve 28, the stem 29 of which is threaded at 30, where it engages the extension 26, and passes through the generator and the tubular extension 22, the latter being equipped with a stuffing-box 31 beyond which the stem carries an operating-handle 32 for adjusting this cut-off valve. The lower head of the casing 13 forms a priming-cup 33 adapted to contain asbestos-fiber 33¹, or the like, for holding the priming-fluid (as wood alcohol). This head surrounds the tube 22, to which it is fastened by a set-screw at 34. The upper head 35 surrounds the nipple 25 and is rigidly fastened by tap-screws, one of which is shown at 36 in Fig. 2, to lugs on the bottom of the mixing-chamber 10; and a set-screw 37 works through a neck 38, depending from the mixing-chamber, against the nipple 25, which extends into that neck. The casing 13 is rigidly supported through the medium of its fastenings 36 in suspended position on the chamber-portion 10 of the head 8; and the set-screw 37 secures the generator in its centrally suspended position within the casing 13, from which it may be readily removed, when the casing is open, upon loosening the set-screw to withdraw it from its engagement with the nipple 25.

An air-supply pipe 40 is screwed at one end into the nipple-end 11 of the mixing-chamber and is intended to project out of doors, or into the atmosphere through a wall,

indicated at 41 in Fig. 1, of the compartment containing the apparatus when in use. On the projecting end of the air-pipe is screwed a tubular cap 42, or tubular cap, containing 5 openings shown in the form of longitudinal series of oblique slots 43 shielded against the ingress of foreign matter by a screen 44 covering them inside the cap. A discharge-tube 45 is screwed, for supporting it in vertical position, through the base of the seat 10 12, whereby its lower end projects into the mixing-chamber near the inner end of the latter and in alinement with the orifice controlled by the needle-valve 28; and the upper part of the tube 45 is housed in the base-portion of a gas-delivery pipe 46 terminating at its lower end in a coupling 47 which screws into the seat 12. Another tube 48, which forms the gas-return tube for the sub-flame, extends in the pipe 46 and through 20 the wall of the mixing-chamber and head 35 into the casing 13 nearly to its lower end and passes, in the latter, through alining openings 48¹ in the plates 19, 20. The tube 25 48, which is fastened by a set-screw 49, is open at its end in the pipe 46, but closed at its lower end, above which it is provided along its inner face, or section facing the outer wall of the generator-chamber, with 30 a series of screen-covered openings 50, of gradually-increasing length in the upward direction of the series, at least as to the three upper openings, five in all being shown.

For supporting the apparatus in operative position means are shown in Fig. 1 35 consisting of an arm 51 carrying on one end a clamp-ring 52 fastened about the pipe 46 and terminating at its outer end in a crow-foot or bracket-head 53 adapted to be 40 fastened to a wall indicated at 54.

Gasolene for feeding the apparatus may be contained under suitable pressure (30 to 35 pounds) in a tank (not shown) supported in proper position to cause its contents to flow into the generator-chamber 45 about the valve-stem 29 by way of the tubular extension 22 through a tubular wire 55 which passes through an opening 56 in the wall of the casing 5 and connects the supply-tank, referred to, with the fine bore 57 (Fig. 4) in the branch 24. The branch 23 50 leads to the inner end of this bore and contains a needle-valve 58, the stem 59 of which is threaded to work in said branch for regulating the flow of the supply of gasolene by 55 adjusting the needle-valve.

To start the operation of my improved apparatus when placed in position for use, the needle-valves are adjusted to properly 60 regulate the flow, and the priming-fluid is introduced into the priming-pan 33 and is ignited to gasify the gasolene initially introduced into the generator-chamber. The generated gas discharges past the valve 28 65 into the chamber 10, where it meets and

mixes with air from the pipe 40, and the mixture discharges through the tube 45 into the pipe 46. Under the pressure generated in the delivery-pipe, some of the mixture passes downwardly through the gas-return tube 48 and discharges through the 70 screened openings 50. This discharge becomes ignited and thereafter the flame from these openings is directed and plays against the generator-tube 18, which it encircles under the directing-action of the baffle-plates 75 to insure uniform heating of the generator. Thereafter the priming-pan may be dispensed with and the continued generating action of the apparatus is automatic. It is 80 found advantageous to provide the openings 50 of the different lengths referred to, it being found where they are all of the same length that the discharge from them is lacking in uniformity, that from the upper 85 openings being undesirably meager.

The construction thus described involves comparatively few parts, renders it simple to manufacture and very compact; and the facility with which the generator may be 90 removed, for repairing or cleaning it, is one of the more important advantages of my improvement, which include, also, the distributing action of the baffle-plates to insure encompassing the generator-chamber with 95 the sub-flame and the utilization of the maximum amount of its heat.

In Fig. 2 is shown a screw-valve 60 being preferably an integral part of the set-screw 49, and is adapted to be adjusted in 100 the passage through the return-flame tube 48 for regulating the flow through it. Some such device is desirable, since the apparatus is intended for use with a varying number of burners. Where fewer burners are in 105 use, the pressure in the pipe 46 tends to force an excessive quantity of gas through the tube 48, and this may be prevented by constricting the passage through it by properly adjusting the valve 60, which may be 110 readily adjusted in the opposite direction, to open that passage according to requirement where the number of burners used is increased.

What I claim as new and desire to secure 115 by Letters Patent is—

1. In a gas-generating apparatus, a generator comprising a chamber equipped with feed and discharge regulating valves, a disk-like baffle-plate surrounding said chamber at its upper discharge end, and a series of lower inclinedly-extending baffle-plates surrounding said chamber, for the purpose set forth. 120

2. In a gas-generating apparatus, the 125 combination of a generator comprising a tubular chamber equipped with feed and discharge regulating valves, and a series of baffle-plates formed integral with said chamber to extend at intervals inclinedly 130

about the exterior thereof, for the purpose set forth.

3. In a gas-generating apparatus, the combination of a generator comprising a tubular chamber equipped with feed and discharge regulating valves, a series of baffle-plates extending at intervals about the exterior of said chamber, and a gas-return tube extending through said baffle-plates and provided with openings facing the chamber-wall, for the purpose set forth.

4. In a gas-generating apparatus, the combination of a generator comprising a tubular chamber equipped with feed and discharge regulating valves, a series of baffle-plates extending at intervals about the exterior of said chamber, and a gas-return tube extending through said baffle-plates and provided with screened openings of relatively varying dimensions facing the chamber-wall, for the purpose set forth.

5. In a gas-generating apparatus, the combination of an outer casing provided with a door, a mixing-chamber in the upper end of said casing, an inner casing depending from the mixing-chamber and formed of hinged sections, and a generator, equipped with feed and discharge regulating valves, supported in the inner casing and discharging to said chamber, for the purpose set forth.

6. In a gas-generating apparatus, the combination of an outer casing provided with a door, a mixing-chamber in the upper end of said casing, a generator equipped with feed and discharge regulating valves secured to depend from the mixing-chamber, and an inner casing inclosing the generator and comprising an upper head secured to the mixing-chamber, a lower head secured on the generator and forming a

priming-pan, and a wall-portion formed of hinged sections, for the purpose set forth.

7. In a gas-generating apparatus, the combination of an outer casing provided with a door, a mixing-chamber on the upper head of said casing, an air-inlet pipe leading to said chamber and a discharge-tube leading therefrom, an inner casing supported in the outer casing on the mixing-chamber, a generator supported in the inner casing, discharging to said tube and equipped with feed and discharge regulating valves, baffle-plates surrounding the generator, a delivery-pipe on the outer casing into which said tube discharges, and a sub-flame tube in the delivery-pipe extending therefrom into the inner casing and through the baffle-plates therein and provided with openings facing the generator.

8. In a gas-generating apparatus, the combination of an outer casing provided with a door, a mixing-chamber on the upper head of said casing, an air-inlet pipe provided on its outer end with a cap and connected at its opposite end with said chamber, a discharge-tube leading out of the mixing-chamber, an inner casing supported in the outer casing, a generator supported in the inner casing, discharging to said tube and equipped with feed and discharge regulating valves, baffle-plates surrounding the generator, a delivery-pipe on the outer casing surrounding the discharge-tube, and a sub-flame tube in the delivery-pipe extending therefrom into the inner casing and through the baffle-plates therein and provided with openings facing the generator.

HARTT H. EASON.

In presence of—

J. G. ANDERSON,

R. A. SCHAEFER.