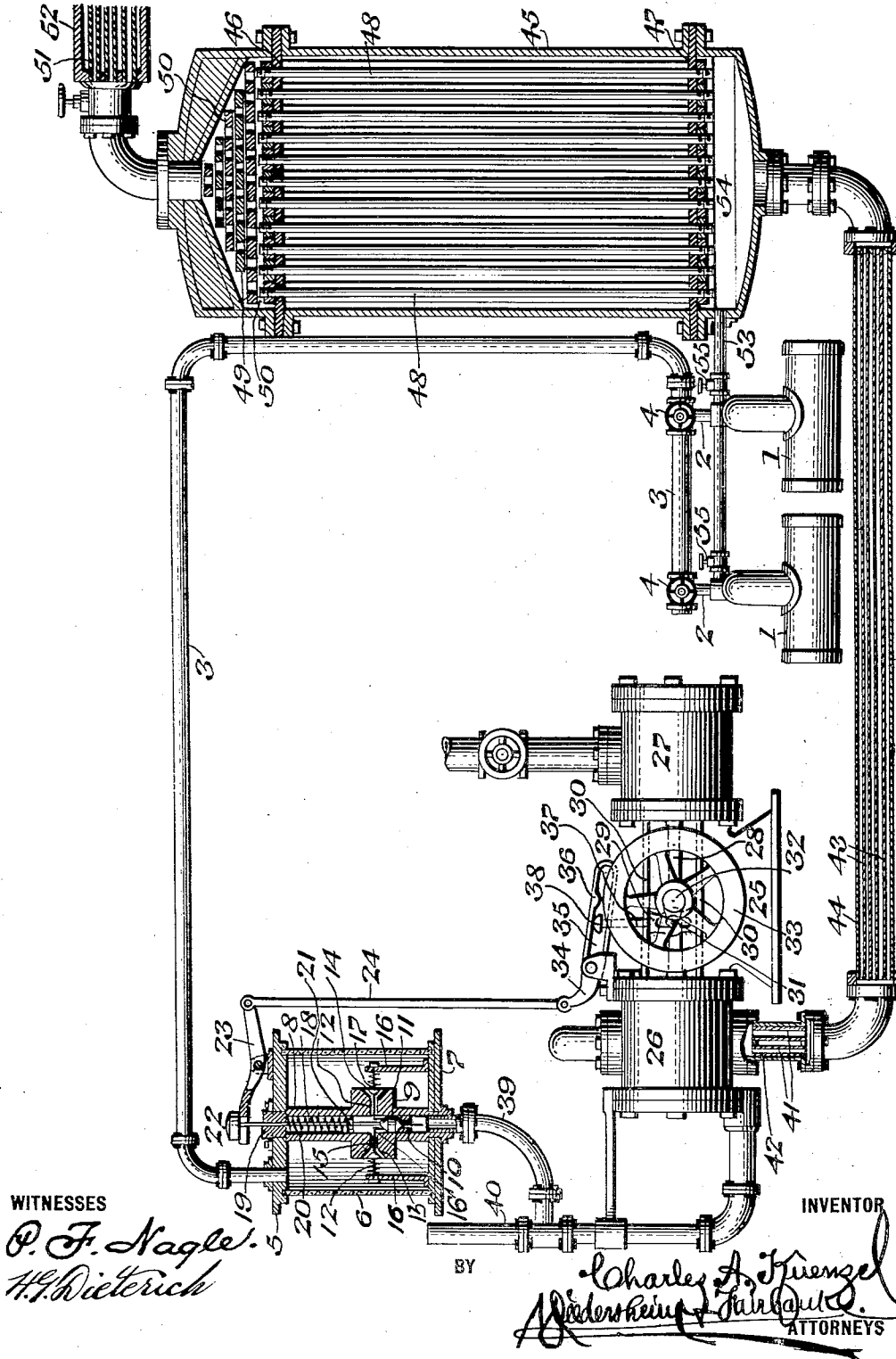


C. A. KUENZEL.
GAS PRODUCER.

APPLICATION FILED NOV. 29, 1911.

1,042,566.

Patented Oct. 29, 1912.



WITNESSES

P. F. Nagle.
H. G. Dieterich

INVENTOR

Charles A. Kuenzel
Widerberg & Fairbank
ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES A. KUENZEL, OF BUENA VISTA, COLORADO, ASSIGNOR TO THE KUENZEL GAS PRODUCER & SMELTER CONSTRUCTION CO., A CORPORATION OF WASHINGTON.

GAS-PRODUCER.

1,042,566.

Specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed November 29, 1911. Serial No. 663,047.

To all whom it may concern:

Be it known that I, CHARLES A. KUENZEL, a citizen of the United States, residing at Buena Vista, in the county of Chaffee, State of Colorado, have invented a new and useful Gas-Producer, of which the following is a specification.

My invention consists of an improved gas generator for generating gas from oil and air under pressure.

It further consists of improved means for conveying the gas to the burner or other point of destination.

• It further consists of other novel features of construction, all as will be hereinafter fully set forth.

The drawing represents a somewhat diagrammatic view, partly in section and partly in elevation, of my improved producer or generator.

Referring to the drawing, the reference numerals 1 indicate oil-tanks having each an outlet-pipe 2, communicating with an oil-supply pipe 3, and having each a cut-off valve, 4. Said supply pipe enters a head, 5, of a glass-cylinder, 6, forming an oil-receptacle and having a bottom 7. A tube, 8, is axially secured in said receptacle, having its ends secured in the head and bottom and said tube has a valve-chamber, 9, formed at about its middle. A valve-seat, 10, is formed in the bottom of said chamber, and a valve, 11, is seated upon said seat. Said valve is in the shape of a double cone. The sides of the valve-chamber are formed with radial channels, 12, having valve-seats, 13, at their outer ends, and valves, 14, fit upon said seats and have stems, 15, extending inward and provided with heads, 16', at their inner ends, which heads may be engaged and moved outward by the upper, cone-shaped end of the main valve 11, when the latter is raised. The outer ends of the valve-stems slide in upright guides, 16, in the oil-receptacle, and springs, 17, upon said stems bear against said guides and the lateral valves 14, to force the same against their seats. The main valve has a stem, 18, which slides through a gland, 19, in the head of the receptacle and has a spring, 20, around it, bearing against said gland and against a shoulder, 21, upon the stem to force the main valve down upon its seat. The upper end of the valve-stem has a head, 22, and the forked end of a lever, 23, engages the stem

and head. Said lever is fulcrumed upon the head of the oil-receptacle and has the upper end of a connecting rod, 24, pivotally connected to it.

A high efficiency double-acting air-compressor, 25, of any known or desired type has a compression-cylinder, 26, and a power-cylinder, 27, for steam or other power, and the pistons of said cylinder are connected by a piston-rod, 28, carrying a slotted cross-head, 29, guided in ways, 30, and engaging a crank, 31, upon the shaft, 32, of a fly-wheel, 33. A lever, 34, is fulcrumed upon the compression-cylinder and has one arm pivotally connected to the lower end of the connecting rod 24. The other arm of said lever has a slot, 35, formed with a cam-bulge, 36, at about its middle, and an arm, 37, is secured to the cross-head of the compressor and has a cam-head, 38, movable within the slot of the lever and engaging the cam-bulge in the same. A pipe, 39, extends from the lower end of the axial tube in the oil-receptacle, below the main valve-seat in the same, and said pipe enters a pipe, 40, having an open upper end for the intake of air and connected to the intake of the compression-cylinder.

A conduit is formed by a number of pipes, 41, of small diameter which are connected to the outlet of the compressor and inclosed in a jacket, 42, which pipes again communicate with a number of pipes 43, inclosed in a jacket, 44, and said pipes open into the lower end of a gas-container, 45, having plates, 46 and 47, at its upper and lower ends, into which the ends of a number of pipes, 48, of small diameter are secured. A checker-work, 49, of blocks 50, is placed upon the upper plate 46, in the container, and a number of pipes, 51, inclosed in a jacket, 52, lead from the top of the container to the burner or whatever other device where the gas is burned or otherwise consumed. A pipe, 53, leads from the bottom-space, 54, of the container and is connected to the tops of the oil-tanks, suitable valves, 55 being provided to control the supply of gas under pressure to said tanks.

When the air-compressor is started, the arm 37 upon the cross-head and its cam-head will strike the cam-bulge in the lever at each reciprocation, drawing the main valve in the oil-receptacle upward to open the lateral valves to admit oil into the valve-

chamber and to allow a quantity of oil to escape from the valve-chamber. This intermittently fed oil will be drawn into the compressor mingled with air entering through the open intake pipe and the mixture will be compressed and be forced through the small pipes in the connection to the container and into the latter being at all times retained under substantially the initial pressure. By passing through the small diameter pipes and through the checker-work at the top of the container, the liquid oil will be finely comminuted and thoroughly mixed under pressure with the compressed air, being also vaporized by the heat of the compression, so that there will issue from the container a perfectly dry and highly inflammable gas, which may be used for any purpose for which gas is employed, such as for heating boilers, smelting ores, heating or melting metals or glass, or any similar purpose. The passage of the oil and air mixture through the small pipes in the connections and receptacle will thoroughly mix said constituents, and the maintenance of substantially the initial pressure upon the gas will prevent the same from decomposing and returning to the original state of the constituent elements, such initial pressure being maintained by the capacity of transmission in the pipes and receptacle being substantially the capacity of delivery of the compressor.

A proportion of ninety seven per cent. (97%) of air under atmospheric pressure to three per cent. (3%) of oil will form a highly inflammable gas of great heating properties.

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

1. In an apparatus of the character stated, means for intermittently feeding oil in small quantities, means for admitting air to mix with such oil, a high-efficiency compressor for compressing such mixed air and oil, and a conduit for such compressed mixture con-

sisting of a plurality of small diameter pipes, the transmission capacity of such pipes being substantially equal to the delivery capacity of such compressor, whereby the initial pressure of the compressed mixture is maintained.

2. In an apparatus of the character stated, means for intermittently feeding oil in small quantities, means for admitting air to mix with such oil, a high-efficiency compressor for compressing such mixed air and oil, a gas-container composed of a plurality of small diameter pipes, and a conduit connected to said compressor and container and consisting of a plurality of small diameter pipes, the transmission capacity of such pipes being substantially equal to the delivery capacity of such compressor, whereby the initial pressure of the compressed mixture is maintained.

3. In an apparatus of the character stated, means for intermittently feeding oil in small quantities means for admitting air to such oil, means for compressing such mixed air and oil, a gas-container composed of a plurality of small-diameter pipes and a checker-work of blocks at its discharge end, and a conduit connected to said compressing means and container and consisting of a plurality of small-diameter pipes.

4. In an apparatus of the character stated, an oil receptacle having means for supplying it with oil, a valve in the outlet of such receptacle, an air-compressor, a pipe from the outlet of said oil-receptacle, an air-intake pipe for said air-compressor and having said oil-pipe connected to it, connecting means between said air-compressor and the valve in the oil-receptacle for intermittently actuating said valve, and a conduit connected to the discharge of the air-compressor and consisting of a plurality of small-diameter pipes.

CHARLES A. KUENZEL.

Witnesses:

HARRIE T. COCHRAN,
WILLIAM W. KERR.