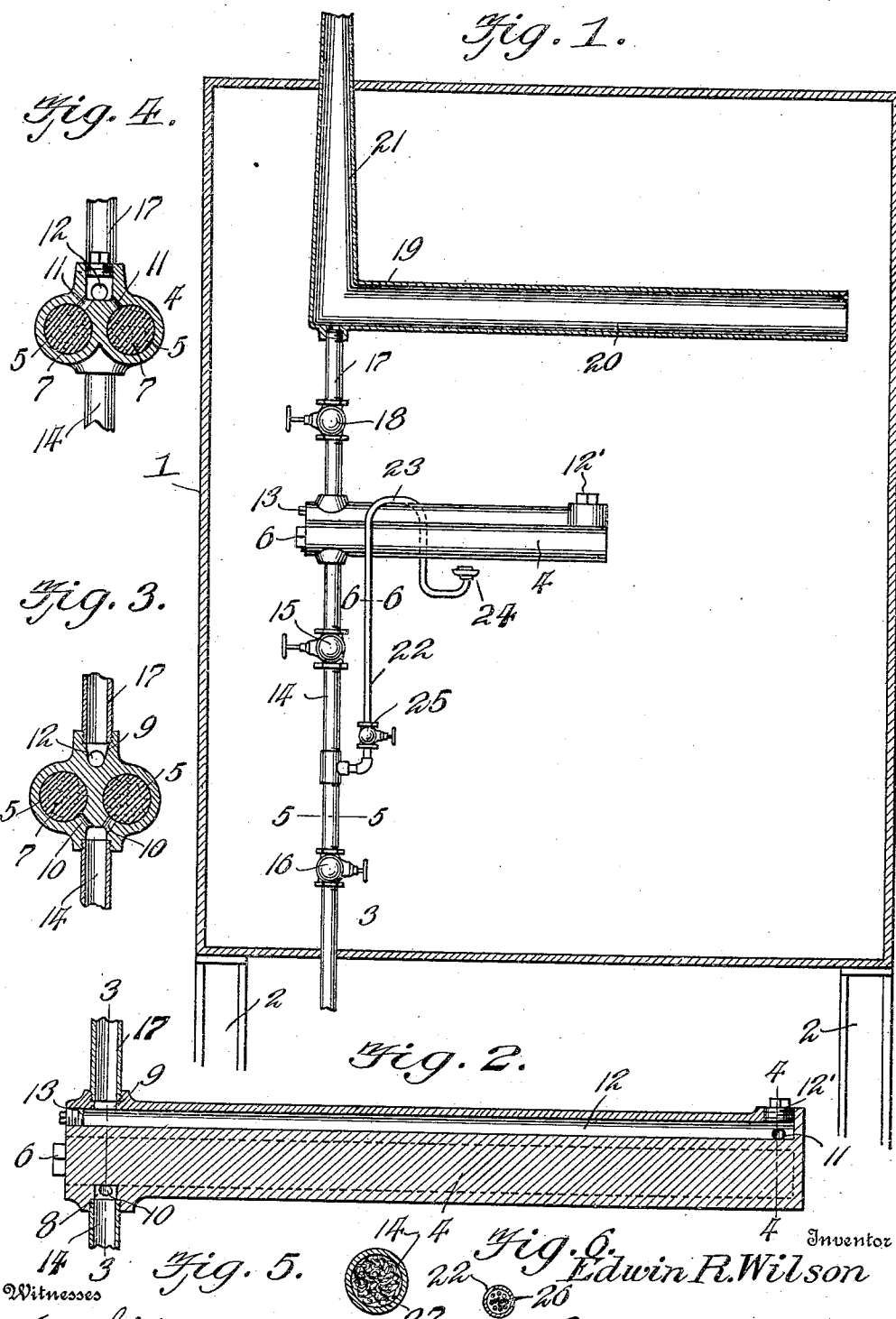


E. R. WILSON.
GENERATOR AND MIXER.
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939,779.

Patented Nov. 9, 1909.



Witnesses
Frank B. Hoffman
C. C. Spies

Inventor
Edwin R. Wilson
By Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

EDWIN R. WILSON, OF HILLSDALE, INDIANA.

GENERATOR AND MIXER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWIN R. WILSON, a citizen of the United States, residing at Hillsdale, in the county of Vermilion and State of Indiana, have invented new and useful Improvements in Generators and Mixers, of which the following is a specification.

This invention relates to improvements in generators and mixers for hydrocarbon lighting systems, one of the objects being to provide a generator and mixer of simple construction by which the hydrocarbon will be quickly and efficiently converted into vapor and mixed with air for supply to the burner, and another object is to provide means for heating the generator and keeping the same heated at all times, whether or not the burners are in use, so that the instant generation of vapor may be started at any time.

The invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawing, in which:—

Figure 1 is a sectional elevation of the generator and mixer and the stand or casing therefor. Fig. 2 is a longitudinal section through the generator. Fig. 3 is a cross section on the line 3—3 of Fig. 2. Fig. 4 is a cross section on the line 4—4 of Fig. 2. Fig. 5 is a section on the line 5—5 of Fig. 1. Fig. 6 is a section on the line 6—6 of Fig. 1.

Referring to the drawing, 1 designates a supporting stand or casing, which may be of any suitable structure, and may be mounted upon legs 2. Entering the lower end of this supporting stand or casing is a hydrocarbon supply pipe 3 leading from a tank or other source of hydrocarbon supply. Within the stand or casing is a generator 4 comprising an elongated bar or block of metal, said bar or block being provided with a pair of parallel longitudinal channels 5 each closed at one end by a screw plug 6 and containing a filling 7 of porous refractory material, such as carbon, asbestos, etc. The generator is provided at one end with a feed port 8 and at the same end and above said port with a discharge port 9, said ports being internally threaded. Leading from the port 8 to the chambers or channels 5 are ducts 10,

and leading from the opposite ends of said channels at the outer end of the generator 55 are ducts 11 communicating with the outer end of a vapor bore or passage 12 leading to the outlet 9. The ends of this bore open through the opposite ends of the generator body and are internally threaded for the reception of closure plugs 12' and 13 by which access may be obtained thereto at any time for the removal of deposits.

A hydrocarbon feed pipe 14 connects the supply pipe 3 with the inlet 8 of the generator and is provided with a controlling valve 15, a second controlling or cut-off valve 16 being interposed between the proximate ends of the pipes 3 and 14 to cut off the supply of hydrocarbon when it is desired to clean, repair or replace parts of the apparatus. The outlet 9 of the generator has leading therefrom a vapor conducting pipe 17 having a controlling valve 18 therein and connected with a mixing device 19. This mixing device 75 comprises an L-shaped tube or pipe having a horizontal limb 20 forming an air supply pipe and a vertical limb 21 forming a commingling pipe and conductor for the flow of the mixture to the burner. Air under normal atmospheric pressure or compressed to a suitable density is entrained by the induced suction or forced under pressure into the pipe 20, whence it flows into the pipe 21 and commingles in the latter with 85 the vapor from the pipe 17, which connects with the mixer in line with the lower end of said pipe 21, which preferably tapers toward its upper or discharge end to retard the flow of the mixture and secure an effective commingling of the air and vapor before they 90 are supplied to the burners. The discharge end of the pipe 21 is designed to be reduced to a proper and convenient size for connection with the piping leading to the 95 burners.

Connecting at its lower end with the feed pipe 14 is a burner tube or pipe 22, of restricted size with respect to the other pipes, and having its upper end bent partially or entirely around the generator, as at 23, and terminating below the generator to support a burner 24. The pipe 22 is provided with a controlling valve 25 for the feed of hydrocarbon therethrough to the burner, and the interior of said pipe is provided with a fill-

ing of fine wires 26 to maintain a determined temperature therein and to promote the capillary feed of the fluid. A reduced supply of the hydrocarbon, the amount of
5 which can be controlled by the valve 25, is supplied at all times to the burner 24, at which it is ignited, forming a flame of greater or less size, according to amount of supply, to keep the generator heated for the
10 conversion of the hydrocarbon passing there-through into vapor. While the burner 24 is always ignited and heats the generator, the surrounding portion or loop 23 of the pipe 22 is employed to heat the gasoline supplied
15 to said burner or to convert it into vapor for more rapid combustion and production of a hotter flame. In order to prevent transmission of the heat from the burner and the generator to the hydrocarbon supply pipe 3, the feed pipe 14 is provided with a filling
20 27 of asbestos or other suitable material which will prevent the downward transmission of heat to the hydrocarbon supply pipe and at the same time permit of the flow of
25 the gasoline to the generator.

It will be understood from the foregoing description that when the generator is in operation the vapor will discharge through the pipe 17 into the mixer 19 and become
30 commingled therein with air, forming a gaseous vapor which will be supplied to the burners of the system for consumption. When the burners are out of operation, the valves 15 and 18 are closed, but the valves
35 16 and 25 remain wholly or partly open and supply hydrocarbon to the burner 24, thus keeping the latter intensely heated, so that upon the subsequent opening of the valves 15 and 18 to set the system into action the
40 hydrocarbon initially passing through the generator will be at once converted into vapor, by which means the supply of gas to

the burners may be instantaneously started at any time.

Having thus fully described the invention, 45 what I claim as new is:—

1. A generator comprising a body provided with a plurality of longitudinal chambers, each containing a filling of porous material, each chamber having an internally 50 threaded open end and provided with an inlet at one end of the generator and an outlet at the opposite end thereof, said generator also being provided with a vapor passage communicating at one end with the outlets of the chambers and having at its opposite end a discharge passage, and further provided with threaded openings at its opposite ends, and plugs closing the internally threaded open ends of the chambers and the 60 threaded end openings of the vapor passage.

2. In a hydrocarbon lighting or heating system, the combination of a hydrocarbon supply pipe, a generator, a hydrocarbon feed pipe leading from the supply pipe to 65 the generator, said pipes being provided with controlling valves, a valved discharge pipe leading from the generator for the discharge of the vapor, a valved burner pipe connected with the feed pipe between the 70 valves in said supply and feed pipes and having a portion partially surrounding the generator and carrying a burner, and an L-shaped mixing tube having horizontal and vertical branches, said branches being in 75 communication at their point of intersection with the vapor discharge pipe.

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

EDWIN R. WILSON.

Witnesses:

MARK HARDING,
HARRY STAATS.