

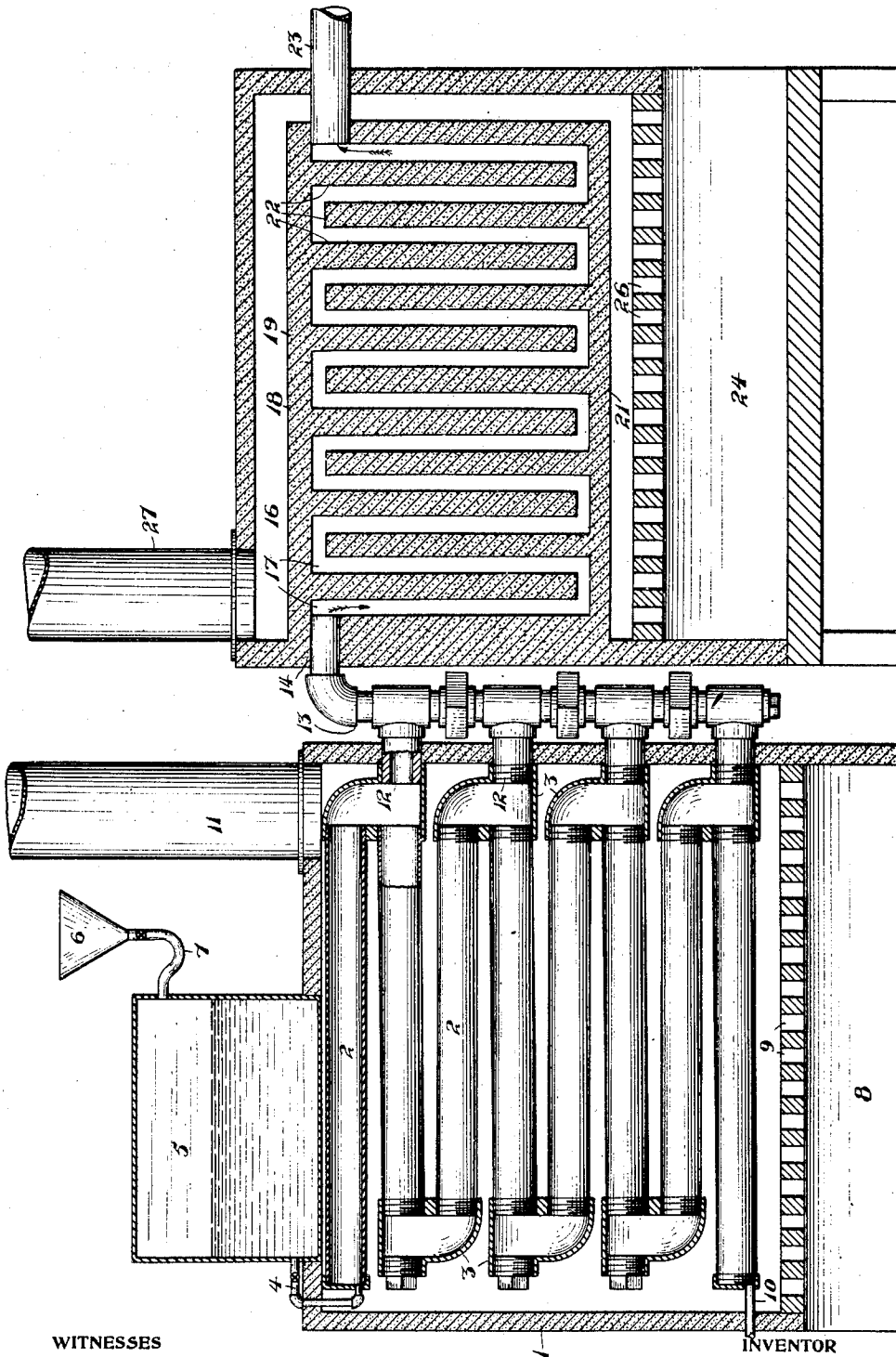
J. T. DAVIS.

APPARATUS FOR MAKING COMBUSTIBLE GAS OUT OF PETROLEUM.

APPLICATION FILED APR. 3, 1912.

1,058,660.

Patented Apr. 8, 1913.



WITNESSES

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JOHN T. DAVIS, OF ALAMEDA, CALIFORNIA, ASSIGNOR TO TECHNICAL DEVELOPMENT CO., OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF ARIZONA.

APPARATUS FOR MAKING COMBUSTIBLE GAS OUT OF PETROLEUM.

1,058,660.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed April 3, 1912. Serial No. 688,157.

To all whom it may concern:

Be it known that I, JOHN T. DAVIS, a citizen of the United States, residing at Alameda, in the county of Alameda and State of California, have invented new and useful Improvements in Apparatus for Making Combustible Gas Out of Petroleum, of which the following is a specification.

The object of the present invention is to provide a simple and effective apparatus for making a fixed gas from crude petroleum.

In the accompanying drawing, the figure is a vertical longitudinal section of my improved apparatus.

Referring to the drawing, 1 indicates the wall of a heating chamber, in which is contained a vertical series of horizontal pipes 2, connected by elbows 3 so as to form a zigzag or tortuous vertical conduit. Crude oil is conducted to the uppermost pipe of the series by a pipe 4 leading from a tank 5 outside of said heating chamber, which may be replenished from time to time through a funnel 6 and pipe 7. To the lower end of the conduit is connected a pipe 10 for drawing off the residual asphaltic or other base. The oil in said conduit is heated by the products of combustion arising from a combustion chamber 8, passing through a perforated floor 9 of the heating chamber, ascending in said heating chamber and passing out by a flue 11 therefrom. The length of said series of horizontal pipes is such that substantially all of the vaporizable parts of the petroleum are evaporated, leaving as a residuum only the asphalt or other base of the petroleum, which escapes in a hot freely flowing condition by the pipe 10. Attached to each elbow of the series at one end of the heating chamber is a short pipe 12, all of said pipes 12 being connected through the adjacent wall of said chamber with a vertical conduit 13, the upper end of which passes through a wall 14 of a fixing chamber 16 and into the first of a series of vertical conduits 17. These conduits are formed in brickwork 18, constructed to provide a closed top 19, a closed bottom 21,

and vertical walls 22 parallel with each other and spaced a short distance apart, said walls being connected with the side walls 14 and alternately only with the top 19 and bottom 21 so as to form a zigzag or tortuous conduit. The end of said conduit is connected with a pipe 23 leading outside the fixing chamber. Said brickwork is spaced at the bottom, top, and one end from the bottom, top and end walls of said fixing chamber, and is heated by the products of combustion rising from a combustion chamber 24 beneath said fixing chamber, passing upward through the apertured floor 26 of the fixing chamber, impinging against the bottom of said brickwork, flowing to the end thereof, and then up in the vertical space between said end and the end of the fixing chamber, and then over the top of said brickwork to a flue 27. The heat imparted to the brickwork should be such that the brickwork is raised to a temperature of between 1600 and 2000° F., in which case the vapors arising from the crude oil in passing through the long tortuous path, as shown, through said brickwork, are raised to approximately the same temperature and under such conditions they become a fixed gas, which may be purified, cooled and discharged in the usual manner.

The great utility of my invention lies in its simplicity and economy.

I claim:—

An apparatus for forming a fixed gas from crude petroleum which comprises two heating chambers, means for applying the heat of combustion of fuel to each of said chambers, a vertical series of horizontal pipes connected alternately at opposite ends in one of said chambers, means for supplying crude oil to the uppermost pipe, and drawing off the residuum from the lowermost, a pipe leading from each pipe connection at one end of said heating chamber, a vertical pipe to which all the said latter pipes are connected, a conduit for conducting the gases from said vertical pipe into the second heating chamber, brickwork in said

second chamber arranged to be exposed to the heat of the products of combustion therein and formed to provide a long tortuous conduit, one end of said conduit being connected with the last-named conduit, and a pipe leading from the other end of said conduit for drawing off the fixed gas.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN T. DAVIS.

Witnesses:

FRANCIS M. WRIGHT,
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