

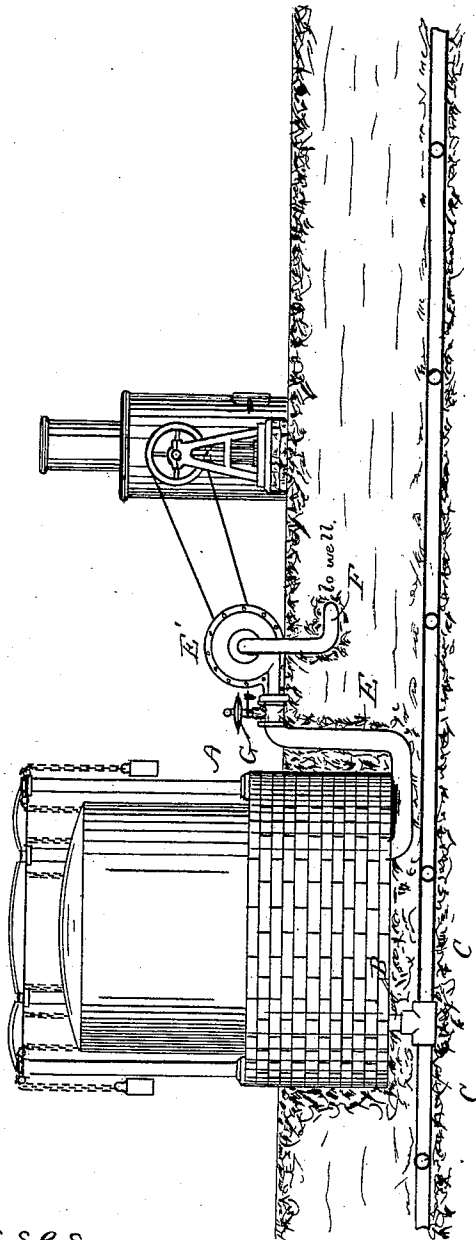
(No Model.)

J. H. DALZELL & T. J. McTIGHE.

METHOD OF DISTRIBUTING GAS.

No. 337,668.

Patented Mar. 9, 1886.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN H. DALZELL AND THOMAS J. MCTIGHE, OF PITTSBURG, PA.

METHOD OF DISTRIBUTING GAS.

SPECIFICATION forming part of Letters Patent No. 337,668, dated March 9, 1886.

Application filed January 23, 1886. Serial No. 189,522. (No model.)

To all whom it may concern:

Be it known that we, JOHN H. DALZELL and THOMAS J. MCTIGHE, citizens of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Methods of Distributing Gas; and we do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawing, which forms part of this specification.

In an application for Letters Patent of the United States filed by us the 17th day of December, A. D. 1885, Serial No. 185,972, we have described and broadly claimed a method of treating explosive gases so as to render them non-explosive without reducing their heating properties, such method consisting in diluting the gas with sufficient air to raise the mixture above the explosive point.

In our present invention we have elaborated the idea or method forming the subject of our said application, and have devised a method and means for diluting the gas with air, at or near the point from which the gas is distributed to cities, towns, or localities, and from said point distributing the mixture to and through the supply-pipes leading to the points of consumption.

Our present invention accordingly consists in a method for the conveyance and distribution of a non-explosive mixture of gas and air, wherein the gas, at or near the point of distribution, is mixed or diluted with air sufficient to render it non-explosive, and the mixture then distributed or supplied to the various points of consumption.

By mixing the gas and air at or near the point from which the mixture is to be distributed, instead of at or near the gas-well or region of main supply, we avoid any reduction in the pressure of the gas during its transit to the point of distribution, which would ensue from the admission or admixture of the air at a great distance from the distributor; and, inasmuch as the distribution of the gas takes place under a comparatively low pressure, the reduction of pressure just previous to distribution is not objectionable.

In the accompanying drawing, wherein is shown an elevation of a plant embodying the mechanical features best adapted for carrying

our invention into effect, A designates an ordinary gas-distributing tank, reservoir, or gasometer which may be employed as the means for distributing the non-explosive mixture of air and gas. From this tank leads a pipe, B, communicating with the supply-branches C C, leading to the various points of consumption.

E designates an inlet-pipe leading to the distributing-tank from a blast apparatus or fan, F', which is also in communication with a main leading from the gas-well, if the latter be the source from which the gas is taken. The blast apparatus is so constructed as to draw in a supply of air with the gas, the mixture being then delivered to the distributing-tank with a given pressure of gas. By running the blast-fan at different speeds a greater or less proportion of air is obtained, or at the same speed by regulating the size of the air-inlet. The gas, it will be understood, is led from the gas-well to the point of distribution at high pressure, and being in its travel unmixed with air is not subject to any decrease of volume other than that resulting from friction. When the gas is diluted with air and rendered non-explosive, its pressure may be reduced, and, if necessary, a regulating-valve may be located between the blower and distributing-tank, as shown at G; but it will be found sufficient in most cases to admit the gas directly from the air-charging apparatus and allow the pressure to decrease by expansion within the distributing-tank. The distribution of the gas from the tank will be in this event at comparatively low pressure, and hence will be in proper condition for use.

The value of the invention above described cannot be overestimated. When the natural gas is distributed through cities and towns unchanged from its normal condition, except in regard to the degree of pressure, apparently no amount of care or precaution can entirely prevent leakage or obviate the dangers resulting from the explosive tendency of the mixture with air produced by leakage.

Our invention, aiming as it does at the very root of the evil, at once destroys every element of danger by rendering the gas non-explosive before distribution; hence leakage may occur to any extent without danger to life and property by explosion or any other disadvantageous result, except waste.

Having described our invention, what we desire to claim and secure by Letters Patent is—

1. The method of distributing combustible gas in an inexplusive condition, which consists in conveying the gas from the well or source of main supply to a distributing-point, admixing the gas before reaching said point with sufficient air to exceed the explosive limit, and then distributing said mixture to the points of consumption, substantially as described.
2. The method of distributing gas rendered non-explosive by the admixture of a proportion of air exceeding the explosive limit, which consists in diluting the gas with the requisite proportion of air while in transit from the well to a distributing point, tank, or reservoir, conducting the mixture to said point, tank, or reservoir, and distributing the

mixture therefrom to the supply-pipes and points of consumption, substantially as described.

3. In a system for the dilution and distribution of gas, the combination, with the main conduit, the distributing-tank, and the supply-pipes leading therefrom, of a fan, blast apparatus, or other device located between the well and the reservoir at or near the latter and adapted for the dilution of said gas before its admission to the reservoir.

In testimony that we claim the foregoing we have hereunto set our hands this 21st day of January, 1886.

JOHN H. DALZELL.
THOMAS J. MCTIGHE.

Witnesses:

THOS. A. CONNOLLY,
M. F. CASSIDY.