

UNITED STATES PATENT OFFICE.

GEORGE McKENZIE, OF GLASGOW, SCOTLAND.

IMPROVEMENT IN THE MANUFACTURE OF ILLUMINATING-GAS FROM COAL AND OTHER MATERIALS.

Specification forming part of Letters Patent No. **100,432**, dated March 1, 1870.

To all whom it may concern:

Be it known that I, GEORGE McKENZIE, of Glasgow, in Scotland, have invented a new, useful, and Improved Process or Method of Treating Coal for the Production of Illuminating-Gas, of which the following is a specification.

My invention relates to the treatment of coal by which its illuminating-gas-producing qualities are improved by mixing with it, previous to or while submitting it to the process of distillation, the improved compound for which Letters Patent of the United States were issued to me on the 9th day of July, 1867, and numbered 66,511; and in order that others skilled in the art may be enabled to make and use my invention, I will proceed to describe it.

The improved compound to which I have referred above is fully described in the specification forming a part of the aforesaid patent, and to that patent I refer for detailed and specific information as to the method of making said compound, only remarking here that it consists of bituminous coal finely pulverized and then intimately mixed with shale-oil or other mineral oil. The proportions of oil and coal stated in said specification as those which I had found to be the most desirable for the purpose were one ton of coal to thirty gallons of oil. This mixture of pulverized coal and oil constitutes a substance readily susceptible of minute divisions. Since the issue of the above-mentioned patent I have discovered that I attain a more desirable result by mixing this compound with lump-coal, that will not of itself yield gas of sufficient illuminating-power, than I do by pulverizing and combining with oil the entire coal used as gas-stock.

The process of mixing the lump or crude coal and the compound is exceedingly simple. It consists in merely putting the two together and mixing them thoroughly in any convenient manner. They may be run through a stirring-mill; or they may be stirred well together by hand with a shovel or otherwise. It is best that the coal to be thus treated should not be

in such large masses or lumps that it will not hold the compound well distributed through it when the mixing has been once accomplished. The proportions I would recommend are one ton of the compound to two tons of crude or lump coal to produce a satisfactory gas. An inferior coal that will produce gas of only a low illuminating-power will, when thus treated, yield a rich and highly-illuminating gas. The proportions given above may of course be varied according to the quantity of the coal employed and the degree of illuminating-power desired in the gas.

The attempt has been made to use the above compound in connection with crude or lump coal by distilling each in separate retorts and then mixing their products, thus enriching the poorer gas from the crude coal with the superior gas from the compound; but I have found by experiment that the process herein described as my invention gives a much preferable result.

The special advantages of my invention are twofold: first, saving expense by rendering it necessary to pulverize only comparatively a small amount of coal to be mixed with oil, and, second, greatly facilitating the process of distillation in the retort.

I do not of course limit myself to any particular proportions of crude coal and the compound referred to, nor to any special method of putting them together; but

What I do claim, and desire to secure by Letters Patent, is—

The process of treating coal whereby its illuminating-gas-producing qualities are improved, by mixing with it, either previous to or while submitting it to the action of heat for the evolution of gas, the compound of pulverized coal and oil referred to, substantially as and for the purposes specified.

GEORGE McKENZIE.

Witnesses:

THOS. A. MASTERSON,
J. P. FITCH.