

UNITED STATES PATENT OFFICE.

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COMPOSITION OF MATTER TO BE USED AS AN OXYGENIZER IN CONNECTION WITH COMBUSTIBLES.

1,112,547.

Specification of Letters Patent.

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No Drawing.

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To all whom it may concern:

Be it known that we, ADOLPHE MORIN, LOUIS HAMON, and ERNEST HESS, all of the city of Montreal, Province of Quebec, Canada, have jointly invented a certain new and useful Composition of Matter to be Used as an Oxygenizer in Connection with Combustibles, and of which the following is a specification.

The oxygenizer is to be sprayed over the fuel to mix therewith and thus augment combustion by supplying the oxygen necessary to insure complete combustion and therefore the maximum efficiency of the fuel.

The oxygenizer is made up of chlorate of sodium and permanganate of sodium, these chemicals being respectively dissolved in water and mixed together.

While the proportions of the constituents may vary according to the requirements of each case the preferred mixture is prepared as follows: 80 parts, by weight, of chlorate of sodium is dissolved at ordinary temperature in 100 parts, by weight, of water and 100 parts, by weight, of permanganate of sodium is dissolved at ordinary temperature in 100 parts, by weight, of water. The two solutions are then mixed, the reaction being that the resultant mixture will contain, by weight, 52.6 per cent. of water, 21.0 per cent. of chlorate of sodium and 26.4 per cent. of permanganate of sodium.

To secure the best results a vehicle or carrier is provided, the mixture being diluted preferably with 50 times its volume of water and the quantity supplied per ton of fuel varied in connection with different fuels.

The great solubility of chlorate and permanganate of sodium enables a powerful oxygenizer to be produced in reduced volume, while there is no danger from the inflammability of the chlorate as it is maintained in a permanent state of humidity by reason of the great hygroscopic qualities of the permanganate of sodium with which it is mixed.

When low grade coal or the like is used, the oxygenizer composed as above described, is diluted with 50 times its volume of water, and is sprayed over the fuel, prior to the burning of the same, at the rate of about ten (10) gallons for each ton of fuel. In connection with coke the mixture is supplied at the rate of twenty-five (25) gallons for each ton of fuel and to secure the most efficient

results when spraying what is commonly and non-technically known as "cinders or scoriae" with the solution, it has been found preferable to spray the solution at the rate of fifty (50) gallons for each ton of fuel.

Heretofore the presence of carbon in the smoke arising from the burning fuel in furnaces or the like, coated the water tubes of the boiler which therefore could not be properly heated and the draft necessarily employed was such as to quickly sweep the heated gases up the chimney and therefore prevent all but a short heating action upon the tubes.

When using the oxygenizer the heat of the furnace acts on the solution and furnishes the oxygen necessary for the combustion of the particles of carbon in suspension in the smoke while the provision of the oxygen also permits of the reduction of the amount of air admitted to the furnace. The decreased draft will result in a smaller consumption of fuel while the heated gases will pass more slowly among the water tubes and therefore prolong their heating period while the consumption of the suspended carbon will avoid the deposit of soot in the tubes and on boiler sections thus leaving them in the best condition for heating.

By the use of our oxygenizer what is commonly and non-technically known as "cinders and scoriae" can be used as combustibles at the same time as coal and the maximum efficiency secured owing to the fact that the water employed for diluting the mixture also serves as a vehicle to enable the solution to penetrate to all parts of the mass being treated and particularly to the "cinders and scoriae" while the oxygenizer brings the particles of coal contained in the "cinders" into contact with the oxygen developed under action of the heat of the furnace and permits of the combustion thereof. A certain proportion of oxygen is supplied by the decomposition of the water used.

What we claim is as follows:—

1. As a means of aiding the complete combustion of fuel and residues, an enriching composition consisting of chlorate of sodium, permanganate of sodium and water the latter in quantity by weight approximately equaling the combined quantities by weight of said salts.

2. As a means for aiding the complete combustion of fuel and residues, an enrich-

ing composition formed of approximately
by weight, 52.6 per cent. of water, 21.0 per
cent. of chlorate of sodium and 26.4 per cent.
of permanganate of sodium.

2. A composition to be used for aiding the
combustion of fuel and residues composed
of chlorate of sodium, permanganate of
sodium and water, the quantity by weight
of one of such salts being in excess of the
10 quantity by weight of the other of such
salts and the quantity by weight of water

being approximately equal to the combined
quantity by weight of the two salts.

In testimony whereof, we have signed our
names to this specification, in the presence 15
of two subscribing witnesses.

ADOLPHE MORIN.
LOUIS HAMON.
ERNEST HESS.

Witnesses:

FRED. J. STEARE,
AUGUSTUS R. EVANS.