UNITED STATES PATENT OFFICE.

OLIVER CHESTER LACEY, OF NEWPORT NEWS, VIRGINIA, ASSIGNOR TO NEW YORK FIRE PROOF COMPANY, OF SAME PLACE.

FIRE-EXTINGUISHING COMPOUND.

SPECIFICATION forming part of Letters Patent No. 683,211, dated September 24, 1901.

Application filed February 27, 1901. Serial No. 49,133. (No specimens.)

To all whom it may concern:

Be it known that I, OLIVER CHESTER LACEY, a citizen of the United States, residing at Newport News, in the county of Warwick and State of Virginia, have invented certain new and useful Improvements in Fire-Extinguishing Compounds; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved fire-extinguishing compound; and it is embodied in the compound presently to be described, and defined in the claims.

While various fire-extinguishing compounds have been suggested heretofore, it has been found largely that such compounds have ingredients which are more or less ineffective and objectionable.

The aim and purpose of my invention is to produce a fire-extinguishing compound which will have those ingredients which are alone effective and which will act promptly and form by their reactions a very efficient and positive fire-extinguishing medium.

With this in view, I employ the following materials in combination and substantially in the following proportions: I first take one hundred pounds of bicarbonate of soda, to which is added twelve per cent. (12%) of manganese chlorid and thereafter three per cent. (3%) of sulate of ammonia, and finally twelve per cent. (12%) of kaolin. This latter element is not effective in the combination, but serves a purpose presently to be stated.

The compound above recited, minus the kaolin, may be stated in the following formula:

$$NA_2CO_3+(NH_4)_2SO_4+MNCL_2=$$
$$2NACL+H_2O+CO_2+N.H_3+MNSO_4.$$

The combination specified in the above formula makes a very positive fire-extinguisher, and for increasing the effectiveness of the compound the material kaolin is incorporated, which acts more indirectly as a mechanical agent, the chemical elements thereof being too inert to act except when associated with a very high temperature.

The particles of the kaolin, which are in a finely-divided state, serve to chill the heated particles which form the flame, against which the compound is projected, and by surrounding the particles in effect prevent further oxidation or combustion of the carbonaceous material. Having accomplished this, the particles of kaolin spread over the burned surface and, further, prevent the combustion of the substances by excluding the air therefrom. The flame thus checked and the air excluded, the carbon dioxid and ammonia serve to prevent a renewal of the fire.

The compound is in the nature of a dry powder and is held as such until ejected or forced into or on a burning mass, the reaction taking place in the presence of heat.

The compound is preserved in a dry powdered state by the presence of the element kaolin, which acts as an absorbent for the other chemicals, thereby retaining the entire compound in a dry powdered state, and without the presence of the kaolin the other chemicals would deteriorate and evaporate.

While I have stated certain proportions of the materials to be used, it is to be understood that the same may be varied; but the proportions stated have been found to be effective.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a fire-extinguishing compound, consisting of a dry powder comprising the bicarbonate of soda, manganese chlorid, sulfate of ammonia, and kaolin, substantially as described.

2. A dry powdered fire-extinguishing compound, consisting of the bicarbonate of soda, one hundred pounds, manganese chlorid twelve per cent.; sulfate of ammonia three per cent.; dry powdered kaolin twelve per cent., substantially as described.

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

OLIVER CHESTER LACEY.

Witnesses:
D. G. SMITH,
E. J. BLANTON.