UNITED STATES PATENT OFFICE.

ALEXANDER K. MURRAY AND CLARA M. MURRAY, OF BRADFORD, PENNSYLVANIA.

ARTIFICIAL FUEL.

SPECIFICATION forming part of Letters Patent No. 401,365, dated April 16, 1889.

Application filed March 6, 1888. Serial No. 266,372. (No specimens.)

To all whom it may concern:

Be it known that we, ALEXANDER K. MURRAY and CLARA M. MURRAY, citizens of the United States, residing at Bradford, in the county of McKean and State of Pennsylvania, have invented certain new and useful Improvements in Artificial Fuel; and we do hereby 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.

Our invention relates to artificial fuel or fuel compounds; and it consists in the combination of ingredients hereinafter fully described, and afterward specifically pointed out in the claim.

Our improved fuel compound is made as follows: We take crude petroleum, petroleum-tar, paraffine, coal-tar, asphaltum, or other substances highly combustible, and mix the same with hay, straw, cornstalks, cobs, shavings, paper, sawdust, or other inflammable waste material, which has been previously reduced to fiber, (or pulp, if preferred,) in the proportions of from one-half to one part of the former, as may be desired, to thirteen parts of the latter. To the resulting mixture two parts of some hardening mixture or substance—such as, for example, water-lime or plaster-of-paris mixed with water—is added. An artificial fuel is thus formed, and to convert the same into an illuminating-fuel we mix with the combination, in desired proportions, nitrate of strontium, chlorate of potassium, orange shellac, lycopodium, or other substance possessing the property of burning with a colored flame, the particular substance used depending upon the color to be produced in the flame. This compound is then pressed into blocks for convenience of handling and storage, and may, if desired, be coated with some readily and highly combustible substance to promote quick ignition.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

In a fuel compound, the combination of crude petroleum, hay, straw, (or the specified equivalents,) and a hardening-mixture—such as water-lime or plaster-of-paris and water—with an illuminating coloring-matter, in the proportion substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

ALEXANDER K. MURRAY.
CLARA M. MURRAY.

Witnesses:
Mrs. W. B. CALLENDER,
CHARLOTTE CALLENDER.