

# UNITED STATES PATENT OFFICE.

HENRY R. BRISSETT, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF ONE-FOURTH TO BENJAMIN BENOIT, OF SAME PLACE.

## ARTIFICIAL FUEL.

SPECIFICATION forming part of Letters Patent No. 584,104, dated June 8, 1897.

Application filed October 28, 1896. Serial No. 610,311. (No specimens.)

*To all whom it may concern:*

Be it known that I, HENRY RUPERT BRISSETT, of Lowell, in the county of Middlesex and State of Massachusetts, have invented or  
5 discovered a new and useful Improvement in Artificial Fuels and the Process of Preparing the Same, of which the following is a specification.

My invention relates to artificial fuel and  
10 the process of preparing the same; and it consists in certain novel features of manipulation and combinations of ingredients, which will be readily understood by reference to the description hereinafter given and to the claims  
15 hereto appended, and in which my invention is clearly pointed out.

The object of my invention is the utilization of crude petroleum as a fuel for use in  
20 steam-boilers, heating-furnaces, and stoves without the objectionable features that attend its use as a fuel in a liquid state, and to this end I solidify the crude petroleum in the following manner: I take about equal parts  
25 of rosin and crude paraffin and melt them together and then allow them to cool to a temperature of about 130° Fahrenheit, when I stir the mass of combined rosin and paraffin into about three times the quantity, by bulk,  
30 of cold crude petroleum, which results in the petroleum losing its native fluidity and its penetrating and insinuating nature and becoming a solid, perfectly locked up, and yet the product, taken as a whole, is a hydrocarbon. It is very desirable that the combined  
35 rosin and paraffin should be mixed with the crude petroleum while the latter is in a cold state, for the reason that every time petroleum is heated it loses one or more gaseous constituents, and thereby has the intensity of  
40 its heat-giving properties diminished. Now, since all hydrocarbons have the same property of melting more rapidly than they burn, this solidified petroleum, though solid enough, must be provided with a binding or holding  
45 material, which, for want of a better name, I term a "wick," in order that it may be completely burned without melting and running to waste. This wick may be any vegetable  
50 fiber—as peat, dry mosses, cotton-waste, rope-walk waste, disintegrated wood, pulverized tanbark, either exhausted or not, and numerous other absorbent substances that locality

or convenience may suggest. All these named  
substances give but two per cent. of ash,  
while coal often gives thirty per cent. The  
55 relative quantity of the wick that should be added to a given quantity of the solidified petroleum will vary somewhat, according to the kind of waste material that is used for the purpose, but will be approximately about  
60 twice the relative bulk. The solidified petroleum and the wick substance are mixed in a grinding-mill similar to the ordinary pug-mill, and then pressed into cubes or bricks of  
65 different sizes, according to the uses to which they are to be applied.

I prefer to press the fuel into cubes of three sizes, as follows: No. 1, one-inch cubes for  
ordinary kitchen-ranges; No. 2, two-inch  
cubes for large heaters, and No. 3 three-and-  
70 one-half-inch cubes for all large steam-boilers, whether in factories or ships, and also for locomotives. While the substances are being mixed together in the pug-mill, I add  
a quantity of quicklime—say about one-half  
75 pound of the lime to a fifty-pound batch of the mixture—for the purpose of destroying all offensive odors that these substances usually give off during combustion and that would  
80 otherwise render the air of a city or other place where crude petroleum was used as a fuel highly unsanitary as well as obnoxious  
to the residents in the vicinity, and would be very likely to result in an order from the  
85 board of health to discontinue its use. These cubes or bricks may be very densely pressed, so as to occupy a small space as compared  
with a quantity of coal having the same heating capacity. They will not absorb water,  
90 and stand the heat of the sun's rays well when exposed in yards or on wharves, as also the temperature of hot boiler-rooms, stoke-pits, &c., and one ton of this fuel is equal in heating  
95 qualities to from two to five tons of ordinary coal. This solidified petroleum fuel will be invaluable in the pottery business for stoking-kilns, where the sulfur contained in coal  
is a source of great annoyance and loss, and the same principle and for the same reason  
100 would be the thing *par excellence* in fine steel making, since solidified petroleum contains no sulfur. The use of the rosin is a great advantage on account of its being very refractory to heat and consequently its melt-

ing-point being high and its being a great oxidizer or is easily oxidized itself, so that a petroleum cube or brick maintains its shape during combustion.

5 What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. As a new composition of matter, crude petroleum, rosin, crude paraffin and vegetable fiber mixed in about the proportions specified.  
10

2. As a new composition of matter, crude petroleum, rosin, crude paraffin, vegetable fiber and quicklime mixed in about the proportions described.

15 3. The process of producing an artificial fuel-brick which consists in melting together about equal quantities in bulk of rosin and crude paraffin, allowing the melted mass to cool to a temperature of about 130° Fahrenheit, then stirring the mixture into about  
20 three times the quantity by bulk of crude petroleum in a cold state, thereby solidifying the petroleum, then grinding and thoroughly mixing the solidified petroleum with about twice  
25 the quantity by bulk of any suitable vegetable fiber, and then pressing the material in cubes or bricks.

4. The process of producing an artificial fuel-brick which consists in melting together

about equal quantities by bulk of rosin and crude paraffin, and thoroughly agitating the same to mix them, allowing the mixture to cool to a temperature of about 130° Fahrenheit, then stirring said mixture into about  
35 three times the quantity, by bulk, of crude petroleum in a cold state, thereby solidifying the petroleum, then grinding and thoroughly mixing the solidified petroleum with twice the quantity by bulk of any suitable vegetable  
40 fiber and a trace of quicklime, and then pressing the material into cubes or bricks.

5. The process of solidifying petroleum which consists in melting together and thoroughly mixing about equal quantities by bulk  
45 of rosin and crude paraffin, allowing the mixture to cool to a temperature of about 130° Fahrenheit, and then stirring said mixture into about three times the quantity, by bulk,  
50 of petroleum in a cold state.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 27th day  
of October, A. D. 1896.

HENRY R. BRISSETT.

Witnesses:

N. C. LOMBARD,

GEORGE H. BROWN.