D. C. McCAN.

FUEL BRIQUET.

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956,901.

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Fig. 1

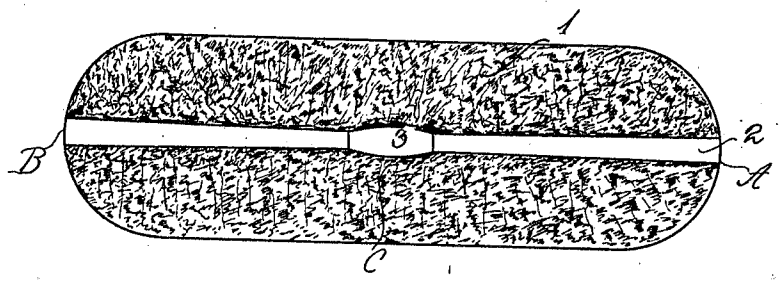
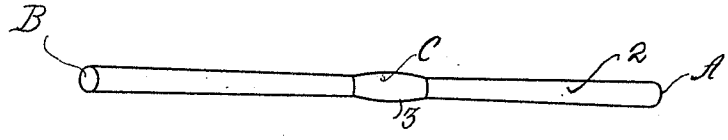


Fig. 2



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UNITED STATES PATENT OFFICE.

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FUEL-BRIQUET.

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To all whom it may concern:

Be it known that I, DAVID C. McCAN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Fuel-Briquets, of which the following is a specification.

This invention relates to an artificial fuel in the nature of a briquet, and particularly to a binding medium for briquets which are composed of compressed waste material, such as waste, wood shavings, saw-dust and such allied combustible materials.

One of the objects of this invention is to provide an economical fuel briquet for domestic and power purposes, which is a non-friable product and which is effectually preserved against stratification and shaling either when roughly handled or when subjected to heat.

Another and important object of this invention is to produce an article for fuel purposes in which the strains due to compression are equalized about a positive center and in which a segregation of the compacted mass into individual disrupted laminations is precluded whereby to obtain a resultant product of uniform density and compaction, and one that is smooth and non-frangible.

In those artificial products of fuel heretofore manufactured, it has been the unvariable practice to embody in the mixture previous to compressing, a binder, either in the nature of a hydrocarbon, or an inflammable element, calculated to assist in the reduction of the mass for the extraction of the heat units as well as to increase the stability of the article. But as a result of the tremendous compression the fuel briquets thus produced, while compact and solid, are expensive, and extremely frangible, a condition which gives rise to chipping and breaking of the fuel block.

In the invention which I am about to describe, I have overcome the disadvantage above alluded to, and with the objects hereinbefore mentioned and others in view, the invention consists of the features and details, as will be described in connection with the accompanying drawing, and then be more particularly pointed out in the claims.

In the drawing: Figure 1 is a sectional elevation of a fuel briquet, showing disposed centrally thereof a double wedge extending longitudinally thereof, and Fig. 2 is a perspective view of the wedge, individually as used in each briquet.

Specific reference being had to the drawing, 1 designates a mass of wood shavings, sawdust, or other carbonaceous waste compressed about a stem 2. Said stem or core 2 as seen in the drawings, consists of a double opposed wedge-shaped bar, which tapers from the respective ends A and B thereof to the center C thereof.

When the mass of waste carbonaceous particles is placed in a suitable compressing chamber, the stem 2 is introduced centrally of the mass and the material then subjected to a pressure ranging from 15,000 pounds to the square inch to 20 tons. The compressing chambers are preferably dome shaped at the respective ends, the best results being obtained by the employment of a receptacle having ends of a rotund contour.

The application of pressure to the mass in which has been embedded the afore described stem 2, results in a concentration of the body of carbonaceous waste about the stem toward the center C thereof. The maintenance of this concentrated compaction in an equal degree toward such center C is insured by the double-opposed wedges of the stem 2, and by this means the reactionary expansion and dilation of the mass after removing the pressure is precluded. It will be noted that the reaction of the mass after compression tends in the same direction, but reversed, as the concentration of the loose mass previous to compression. But after compression the formerly loose particles have become practically a solid and united body; consequently a dilation or expansion of the solid body in a line longitudinally of its axis is precluded, by the wedges, and the lateral strains are offset by the declination of the mass toward the center in accordance with the coincident lines of the wedge. The strains under these conditions are inherent in the mass and fully equalized and stratification of the resultant product is impossible.

The dome shape adds materially to the concentration of the mass about the stem and particularly toward the center along the tapering outline of the wedge. Were the compression to take place in a chamber, the ends of which are rectangular, the concentrations of strains would be along paral-

lel lines from end to end and the results would be a friable article, readily stratified in both longitudinal and vertical directions of its axis. In the production of the present article however, the mass of carbonaceous waste is subjected to pressure from both ends by means of concaved plungers. Thus the concentration does not take place at any point away from the center C of the stem. The strains of compression are angularly centralized from all sides to a particular focus, namely the terminus C of conjoined wedges, and reaction, if any, must occur in the same radius as the compression. Since however, the mass after compression, is no longer an aggregation of waste, but a solid body, the ensuing reactionary effect of expansion must be equally distributed in a ratio proportionate to the mass, but any and all reactionary tendencies are necessarily overcome, because the disruptive strains exercise their full effect upon the mutually opposed wedges, which prevent such action.

Since the greatest amount of pressure of the loose mass, takes place toward the center of the wedge or stem, and under the excessive compression as I propose to utilize in the production of this fuel, this stem 2 is liable to yield and possibly break, I have constructed the wedge or stem as shown in Fig. 2. In that view, 3 designates a bulging portion or a reinforcing medium disposed at the terminus of the inwardly tapering wedges A and B.

The mass of wood shavings or carbonaceous waste when compressed will not only become a unit inherently with the particles of which it is composed, but will readily associate itself with the wedge, so that the eventual product will be a fuel briquet of symmetrical and smooth finish and particularly a solid, non-friable block, possessing all of the thermal units of other fuels.

What I claim is:

1. A binding element for artificial fuel and the like, consisting of a ligneous strip tapering inwardly from its respective ends, and terminating in a boss approximately centrally thereof, in combination with a body of carbonaceous waste compressed thereabout, said body having rounded ends.

2. A fuel block comprising a body of loose waste compressed to have rounded ends, and a rigid binder for said body, comprising a wooden strip tapering inwardly from its ends to approximately centrally thereof, and terminating in a central boss.

3. A fuel block comprising a body of loose waste compressed to have rounded ends, and a rigid binder for and of the same material as said body, said binder consisting of a rectangular strip tapering inwardly from its ends, and terminating approximately centrally thereof in a reinforcing boss.

4. A fuel block comprising a body of loose wood particles compressed about a rigid binder of the same material, said binder comprising a rectangular strip extending longitudinally of the entire length of said body of compressed material, and tapering inwardly from its ends, said tapering portions of said strip terminating approximately centrally of the length thereof in a reinforcing boss whose height is on a line approximately with the incipient points of said tapering portions.

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

DAVID C. McCAN.

Witnesses:

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