

G. GRIFFITHS.
DOMESTIC OR STEAM PRODUCING FUEL.
APPLICATION FILED JAN. 2, 1907.

934,307.

Patented Sept. 14, 1909.

Fig. 1.

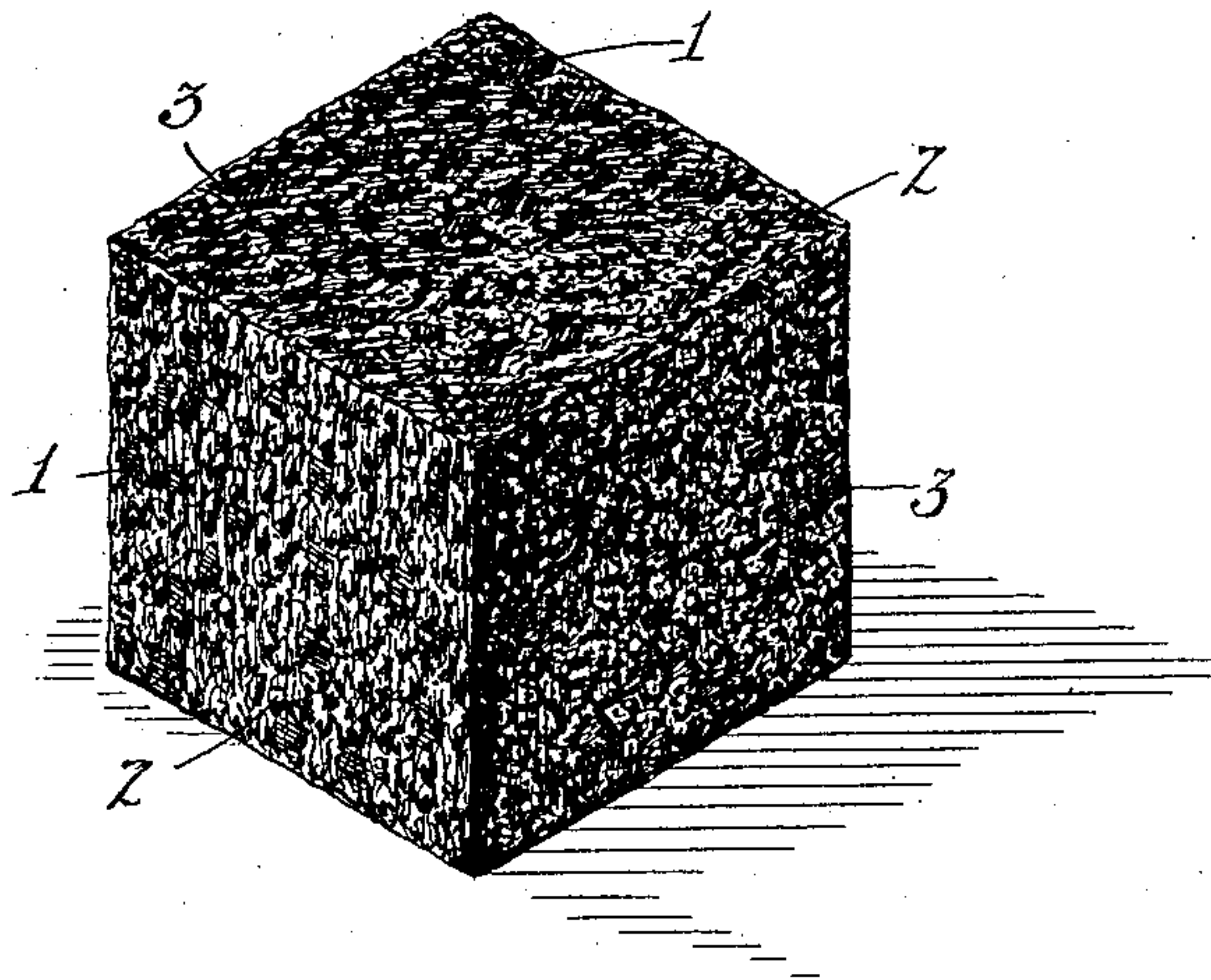
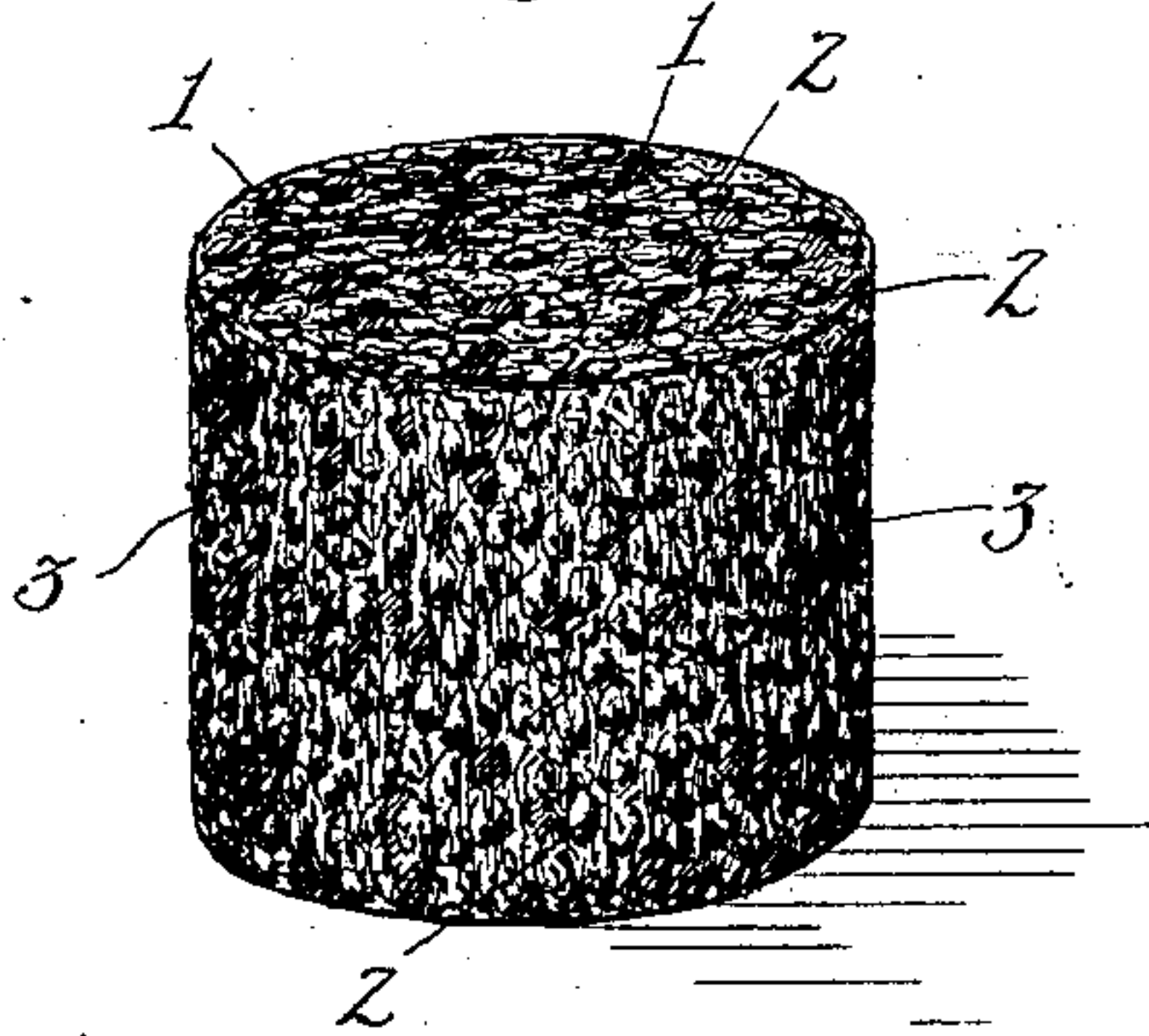


Fig. 2.



Witnesses:
Frank A. Mankau
Anna Wakelin

Inventor,
George Griffiths.
By *Townsend Lyon Hackley & Knight.*
His Attys.

UNITED STATES PATENT OFFICE.

GEORGE GRIFFITHS, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-HALF TO OCCIDENTAL FUEL COMPANY, A CORPORATION OF CALIFORNIA.

DOMESTIC OR STEAM-PRODUCING FUEL.

934,307.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed January 2, 1907. Serial No. 350,541.

To all whom it may concern:

Be it known that I, GEORGE GRIFFITHS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Domestic or Steam-Producing Fuel, of which the following is a specification.

One object of my invention is to produce a fuel of the class described, which, while being cheap of manufacture will at the same time produce in combustion, heat together with a small amount of smoke, and will also produce a good bed of coals resembling in their nature coke or a like combustible.

Another object of my invention is to utilize the shells of the pits of fruits, such as apricot, peach or plum as a domestic or steam producing fuel in a convenient and practical manner, and at the same time avoid the liability of burning out of the metals surrounding and contiguous to the fire.

The principal object of my invention is to reduce the combustibility of the shells of fruit pits, thereby adapting them for burning purposes in domestic and steam production.

The materials utilized have heretofore been considered of little value for the production of heat for domestic or steam purposes, for the reason that in burning the same too intense a heat is produced, thereby burning up the grate bars or other burning apparatus in which they are consumed.

The accompanying drawings illustrate the molded form of my improved fuel.

Figure 1 illustrates the fuel molded into the form of a brick. Fig. 2 illustrates the fuel molded into the ordinary circular briquet form.

1 indicates divided ligneous material, such as saw-dust or shavings.

2 indicates broken apricot pit shells or peach pit shells.

3 indicates asphaltum.

In the manufacture of two-thousand pounds of my improved fuel, I employ the shells of fruit pits, such as apricot, peach or plum 1025 pounds, divided ligneous material such as shavings or saw-dust 300 pounds, asphalt known as grade B of the California commercial asphalt 500 pounds, heavy crude oil, carrying 5 per cent. volatile oils and a heavy percentage of asphaltum, 175 pounds. The asphaltum is broken up into small lumps and placed in a suitable vessel, such as a

kettle, and the crude oil is added thereto, and heat is applied to reduce the asphalt and oil to a liquid. The divided ligneous material, shavings or the like, is then evenly distributed over the surface of the melted material. Great care must be taken in the mixture of the shavings and asphaltum and oil, for the reason that a small amount of moisture carried by the ligneous material will cause the asphaltum and oil to foam and overflow the kettle. When the moisture contained in the shavings has been evaporated by the heat of the asphaltum and oil, the asphaltum and oil and shavings are agitated to mix the same thoroughly. I then take the shells of the apricot pits, peach pits or other suitable kernels of fruits and mix them thoroughly with the previous mixture, after which the material is then placed in molds and tamped by any suitable mechanism or means.

It is well known that the broken pits of any fruits contain a large number of heat units, but it has been impractical heretofore to burn the same in domestic appliances or grates or under steam boilers for the reason that such shells produce an intense or concentrated heat, and the result has been to corrode or burn up any contiguous metals, such as the stove linings and grate bars. By combining the fruit pit shells in the manner herein described I have produced a fuel which is easily lighted and burns in a slower degree and throws off the contained heat units in a less violent manner. The finely divided ligneous material such as saw-dust or shavings serves to act as an igniter while the coating of the shells with the asphaltum retards combustion and reduces the heat, and the undesirable concentration of the heat units from the combustion is absorbed in raising the carbon contained in the asphaltum to the proper point for perfect combustion, and the asphaltum also acts as a binder. The asphaltum oil containing five per cent. of volatile oils also acts as a solvent for the asphaltum.

It is a well known fact that in burning asphaltum a heavy dense smoke of unconsumed carbon is given off owing to the fact that much of the available oxygen is taken up by the more volatile portions of the asphaltum that are driven off by the heat. This causes much of the carbon to pass beyond the zone of combustion and thereby be

cooled before it can be commingled with sufficient oxygen to be burned. However, by using the fruit pits substantially in the manner and quantity specified, I have found that
5 the asphaltum is consumed or burned without smoke apparently on account of the increased zone of ignition caused by the intense heat generated by the pits, and on the other hand, the presence of the asphaltum
10 and other ingredients seems to absorb the excessive heat from the pits and thereby prevents its doing damage to the stove or grate.

What I claim as new is:—

15 1. A composite fuel comprising fruit shells, saw dust, asphalt and crude oil containing asphaltum and volatile oils combined

substantially in the manner and proportions specified.

2. A composite fuel comprising apricot, 20 peach or plum shells, 1025 pounds, saw dust 300 pounds, California asphalt, grade B, 500 pounds, and crude oil carrying 5 per cent. of volatile oil and a heavy percentage of asphaltum, 175 pounds, combined and 25 solidified in the manner and proportions substantially as specified.

In testimony whereof, I have hereunto set my hand at Los Angeles California this 24 day of December 1906.

GEORGE GRIFFITHS.

In presence of—

ARTHUR P. KNIGHT,
FRANK L. A. GRAHAM.