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PROCESS OF MANUFACTURING FUEL BRIQUETTES

Filed March 24, 1928

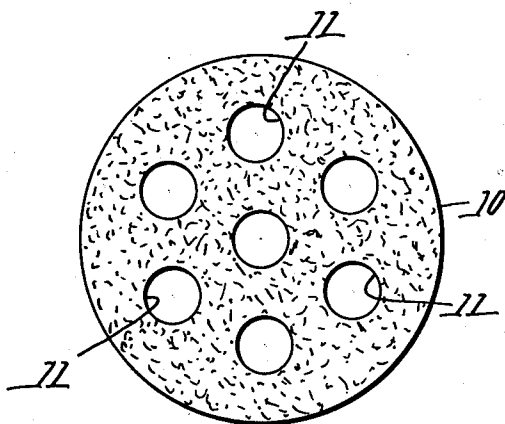


Fig. 1.

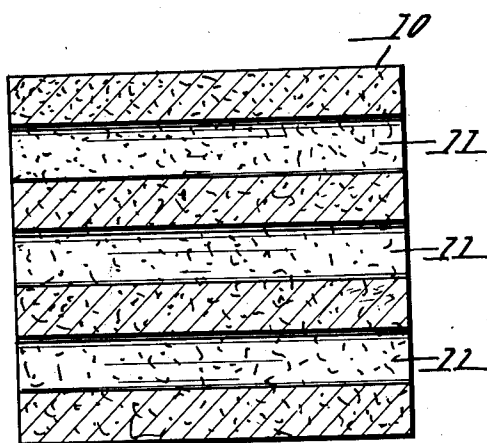


Fig. 2.

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PROCESS OF MANUFACTURING FUEL BRIQUETTES

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This invention relates to a process of making briquettes for fuel purposes of a low grade of coal.

The principal objects of the invention are to provide a process by which the valuable ingredients of the low grade of coal can be formed into briquettes in such a way that the cost of one step of drying ordinarily employed can be reduced and in which the capacity of the baking oven can be increased; to provide a comparatively inexpensive and efficient way of utilizing a low grade of coal as mined, and to provide an improved form of briquette.

In this process I utilize the well known process of de-ashing the coal, called the "froth flotation" process, which is now well known and which is disclosed in several patents, including Patents Nos. 955,012 of April 12, 1910 and 962,678 of June 28, 1910.

Reference is to be had to the accompanying drawings in which

Fig. 1 is an end view of a briquette made in accordance with this process, and

Fig. 2 is a diametrical sectional view of the same.

In this process I not only utilize the well known advantages of the "froth flotation" process but use that process as ordinarily employed for separating the ash from the previously pulverized coal and leaving the coal dust on the top of the mixed liquid. I then partly de-hydrate the concentrates produced by the froth flotation process. I leave these concentrates in the form of a heavy paste and avoid the complete de-hydration and the final drying of these concentrates.

Then I mix this heavy paste thoroughly with a suitable binder, preferably in the form of a heavy asphalt base oil. This leaves the product still in the form of a paste. This is thoroughly masticated or kneaded in suitable machines for that purpose and the paste is then briquetted. I prefer to briquette this paste by extruding it through a die in an auger machine and cutting up the product into short lengths to provide briquettes. By this means I can form the briquettes in any desired length, thickness or shape. After

they come from the extruding machine, they are baked to provide the final product.

By this process I manufacture the briquettes in any form which may be desired and I prefer to make them in the form shown in the drawings. The dies preferably are formed with several cores so that the briquettes are provided with a central hole and a series of holes surrounding it all the way through them and of uniform shape. The principal object of providing the holes through the briquettes is to permit of the heat penetrating the coal briquettes more readily and to avoid large areas of coal, which is a very poor conductor of heat. This is a two fold advantage, permitting of better baking in their manufacture and more thorough burning in their use.

This also makes it possible to form the briquettes several times the diameter of the ordinary briquettes made by the extrusion process heretofore. These larger briquettes can be made without increasing the baking time required to bake them thoroughly because the heat of the oven will pass into the briquettes through the holes. It increases the capacity of the baking oven also by making it possible to deliver more pounds of the fuel product per square foot of baking surface.

By this process the briquettes are formed in a simpler manner than has been done heretofore and the capacity of the apparatus is increased.

Although I have illustrated and described only one form of the invention and one procedure I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims.

Therefore, I do not wish to be limited in these respects but what I do claim is:—

1. The process of producing fuel suitable for use in furnaces and the like from carbonaceous substances which comprises concentrating the same by the "froth flotation" process, reducing the moisture in the flotation concentrates to leave them in the form of a heavy paste, thereafter mixing said

paste with a suitable liquid hydro-carbon, and finally baking the mixture.

2. The process of manufacturing fuel briquettes which consists in concentrating a carbonaceous substance by froth flotation, reducing the moisture in the flotation concentrates to the consistency of a heavy paste, thereafter mixing said paste with a heavy asphalt base oil, molding briquettes therefrom and baking them.

3. The process of making fuel briquettes from low grade coal, which consists in finely pulverizing the coal, concentrating the fine coal, bringing the pulverized coal to the form of a thick paste, thoroughly mixing said paste with a liquid hydro-carbon, molding briquettes therefrom, and baking them.

4. The process of manufacturing fuel briquettes which consists in concentrating a carbonaceous substance by froth flotation, reducing the moisture in the flotation concentrates to the consistency of a heavy paste, mixing said paste with a heavy asphalt base oil, thoroughly masticating this mixture, forcing it through an extruding die, cutting up the product into briquettes, and then baking them.

5. The process of making fuel briquettes which consists in finely pulverizing the coal, concentrating the coal, bringing the pulverized coal to the form of a thick paste, thoroughly mixing said paste with a liquid hydro-carbon, forming said paste into briquettes with a plurality of holes extending through them, and baking the briquettes.

In testimony whereof I have hereunto affixed my signature.

HENRY F. MAUREL.

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