March 11, 1924. 1,486,488

J. R. HINMAN

ARTIFICIAL FUEL AND METHOD OF MAKING SAME

Filed Dec. 3, 1923

Fig. 1.

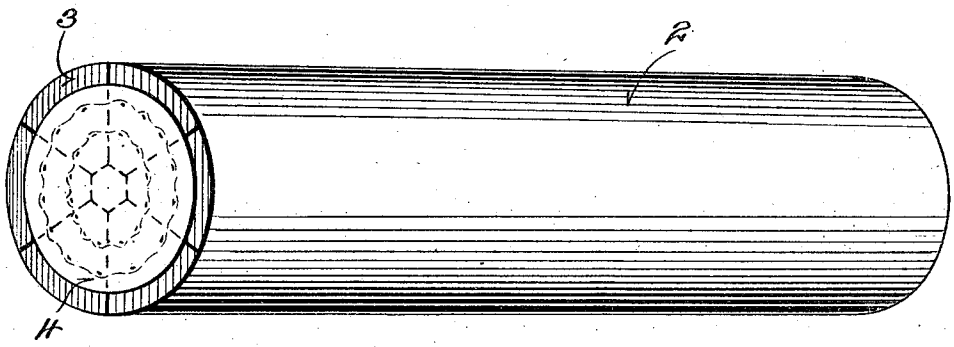
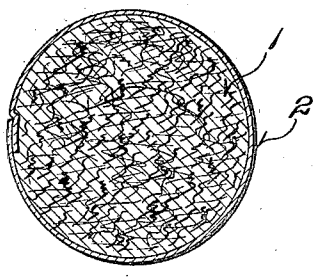


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN R. HINMAN, OF INDIANAPOLIS, INDIANA.

ARTIFICIAL FUEL AND METHOD OF MAKING SAME.

Application filed December 3, 1923. Serial No. 678,187.

To all whom it may concern:

Be it known that I, JOHN R. HINMAN, a citizen of the United States, and resident of Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Artificial Fuel and Methods of Making Same; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to an artificial fuel and to a method of making it.

Objects of this invention are to provide an artificial fuel which is an efficient heat producer, which has a small amount of ash, which burns in a ready and efficient manner and may be as readily controlled as any of the usual types of fuels and which may be cheaply produced from otherwise discarded material.

Further objects are to provide a method of making artificial fuel from garbage, sawdust, rubbish, weeds and other similar material of a combustible, fibrous or cellular nature hereinafter referred to as waste.

Further objects are to provide a method of making artificial fuel which may be expeditiously carried out, which requires a relatively small number of operations and which lends itself readily to the handling of waste in the form in which it is usually received.

In order to illustrate the invention, a form in which the finished product may be embodied is illustrated in the accompanying drawings, in which:—

Figure 1 is a perspective view of one of the fuel elements or units.

Figure 2 is a transverse sectional view through such unit.

In practicing the method contemplated by this invention, the waste is received in its normal state and is finely ground with swamp clay, muck, or peat muck, which is preferably moistened and added to the waste. The proportions of the clay or muck, which will hereafter be referred to as clay, are substantially in about the ratio of one-fifth clay to eight parts by volume of the waste. This material is ground into an intimately mixed mass and preferably oil in about the proportion of one-fourth of one part is added while it is being ground and agitated. However, if the garbage is used, the oil content may be lessened for the reason that the garbage usually contains quite a material amount of oils such, for example, as that due to the presence of animal matter, or similar material.

After the grinding has been effected and the parts are in an intimately mixed state, the mass is subjected to pressure as, for example, by means of a hydraulic press, to expel the major portion of the moisture and to form the resulting product into a compacted mass. The pressure is such that the mass is reduced in volume about eight times although, of course, this exact figure need not be followed, as the reduction in volume will necessarily vary with the different materials employed.

The material is preferably formed into portions or units at the time it is pressed of such size that they may be handled with facility in the usual firing operation.

In order to prevent, on the one hand, either the too great absorption of moisture by the resulting product or, on the other hand, the too complete drying out of the product depending, of course, upon the condition it is exposed to, such product is preferably jacketed, or enclosed in a combustible and hermetically sealed casing. For instance, a paper tube or container may be employed with the ends closed in any suitable manner and sealed in such closed condition.

In the drawings one form in which the finished product may appear, has been illustrated, and in such showing the compacted mass is indicated by the reference character 1 and is shown as of cylindrical contour. This compacted mass is enclosed in a combustible jacket 2 whose ends 3 are closed in any suitable manner as, for example, by folding them inwardly and sealing them either by means of some adherent compound or by means of an additional member 4 stuck to the outer end of the inwardly pressed and folded portions of the jacket.

In actual tests it has been found that this artificial fuel burns in a manner similar to that of the best solid fuels and that the amount of heat derived therefrom compares favorably with that of the high grade solid fuels, such as coal, for instance. It has also been found that the rate of burning may be exactly regulated with the same facility as that of coal.

From these tests it has also been found

that only a small amount of ash is left and that the combustion is complete and thorough.

I claim:—

1. A combustible fuel comprising a compacted body portion of finely divided waste, oil, and clay; and a substantially hermetically sealed jacket surrounding said body portion.

2. The method of making artificial fuel comprising grinding and agitating waste and clay, and reducing the volume and expelling moisture by pressure.

3. The method of making artificial fuel comprising grinding and agitating waste and clay, adding oil to the agitated mass, and subjecting the resulting product to pressure to expel moisture and compact the mass.

4. The method of making artificial fuel comprising grinding waste and clay, adding oil, subjecting the intimately mixed product to pressure to reduce the volume and expel the moisture, and enclosing the compacted material in a jacket.

5. The method of making artificial fuel comprising grinding waste and clay and adding oil, compressing the resulting product and shaping it into readily handled portions, and enclosing each of the resulting compacted portions in an hermetically sealed, combustible jacket.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee, and State of Wisconsin.

JOHN R. HINMAN.